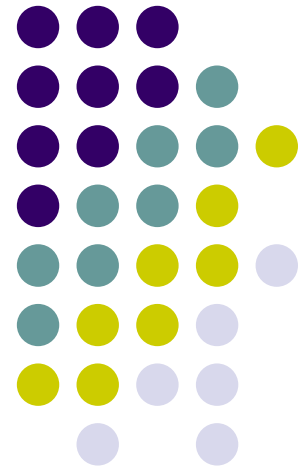


# Introduction to Computer Science

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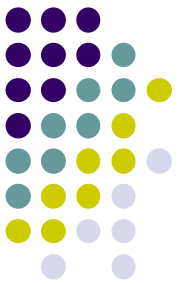
Jiaheng Lu  
Department of Computer Science  
Renmin University of China  
[www.jiahenglu.net](http://www.jiahenglu.net)





# Learning to Love the Research Paper

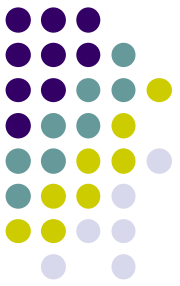
*Or... at least learning to do it well!*



# Table of Contents

- 1. Getting Started**
- 2. The Importance of a First Draft**
- 3. Doing Research**
- 4. Bringing Research Into Your Paper**
  - **Quoting, Paraphrasing, Summarizing**
  - **Avoiding Plagiarism**
- 5. Proofreading Strategies**

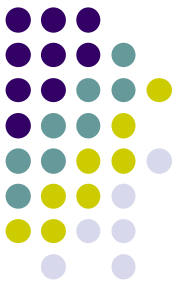
# Getting Started



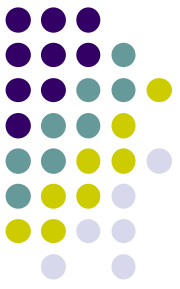
- **Finding a Topic**
- **Developing an Effective Research Question**



# Finding a Topic

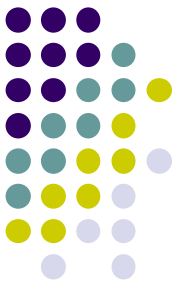


- **Write about what you know.**
- **Whenever possible, seek out a research topic that interests you and that you care about.**
- **Aim to build on knowledge that you already have.**
- **If the topic is assigned, try to develop an angle that will interest you, then run the idea by your instructor.**

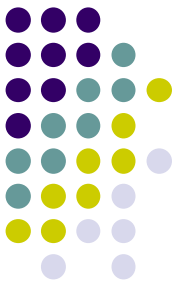


- **Why should you write about what you know?**
  - **Starting with your own views and opinions will motivate you.**
  - **Writing about a topic familiar to you will help you to ask the right questions.**
  - **If you care about the topic, you will care about your paper.**

# Developing an Effective Research Question



- **The best research papers begin with a question because...**
  - **Questions help you to find direction.**
  - **Questions help you to narrow your scope.**
- **Be careful of questions that are too broad.**
  - **Make sure that your question is relevant to the length of your paper.**
  - **Most students use research questions that are not focused enough.**

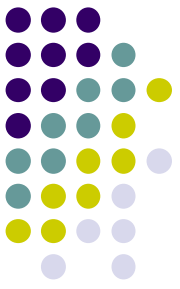


**Too Broad:**

***---- What is Attention Deficit Disorder?***

**More Focused:**

***---- Is diet an effective treatment for  
Attention Deficit Disorder?***



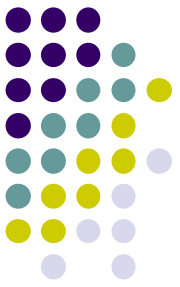
# The Importance of a First Draft

- **Techniques to Help You Start Writing**

- **Brainstorming**
- **Freewriting**
- **Clustering**
- **Using Drafts**

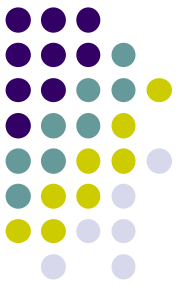


# Brainstorming



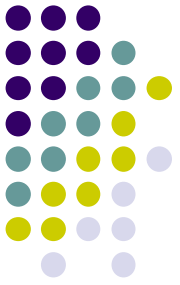
- **Before you begin doing any research, take some time to brainstorm.**
- **When you brainstorm, list everything that comes to mind about your topic, all of your thoughts and ideas, in the order in which they occur to you.**
- **Let your mind free associate and make connections.**
- **Write down everything—even those things which appear silly and unimportant at first.**

# Freewriting



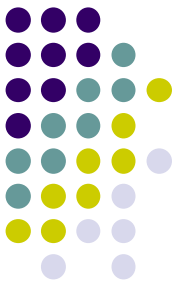
- **Freewriting is nonstop writing. Set aside ten or fifteen minutes, and write whatever comes to you without thinking of word choice, spelling, organization, etc.**
- **Don't stop. Don't get in your own way—you will be surprised what gets down on paper.**
- **Freewriting is similar to brainstorming, in that you write what comes to you in the order it comes to you. However, rather than a list of your ideas, you develop your thoughts by having more of a conversation with yourself.**

# Clustering



- **While brainstorming and freewriting are ways to get information down on paper, clustering allows you to begin to see relationships among ideas.**
- **To cluster, put the main idea in the center of the page, circle it, and list other sub-topics around it, connecting ideas that belong together with lines.**
- **The result looks a lot like a spider's web and will do wonders when you begin to organize your paper.**

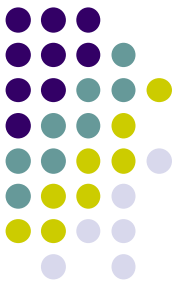
# Using Drafts



- **Most writers cannot sit down and, in one setting, produce quality work. Most writers write in steps or stages.**
- **The first step is a rough draft. It is the “get down” draft—where you get down your ideas onto paper. You do not need to worry yet about spelling, grammar, punctuation, etc.**
- **This first draft is also called the discovery or exploratory draft. Why? Because it is where you explore your topic and discover what you want to say about it.**



- **“But,” I hear you say to yourself...**
  - ***“I don’t know anything about my topic—what can I write about before I do research?”***
- **Think about this:**
  - **A good research paper comes from wanting to know *more* about something.**
  - **A good research paper contains facts and quotes and statistics—yes, but these have been integrated with and filtered through the writer’s own ideas and experiences.**
  - **A good research paper is not a fact-finding mission; it is a synthesis of what you already know and what you learn in the process of your research.**
  - **Most instructors assign topics that ask you to examine a topic more deeply than a fifteen week course can allow. Use class notes, lectures, and textbooks as starting points for your early drafts.**



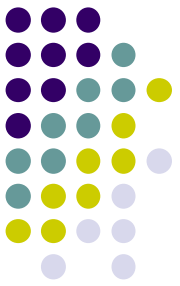
- **Brainstorming, Freewriting, Clustering, and Using Drafts...**

- **These strategies help you to explore your topic before you begin researching it.**
- **They give you the opportunity to get your thoughts down on paper without worrying about organization, grammar, spelling, etc. (There will be plenty of time to worry about these things when you revise your later drafts.)**
- **You can use all of these techniques or only one of them.**



- **Whatever the technique you use, the goal is to try to get all of your thoughts down on paper:**
  - **what you already know about your topic**
  - **what you want to know more about**
  - **why you've chosen the topic**
  - **questions you have**
  - **how you plan to answer those questions**
- **You will be surprised how helpful this first draft will be when you start to gather your research.**

# Doing Research



- **For this presentation, we do not have time to discuss how to search for information on your topic.**
- **There is, however, one piece of advice that is worth gold:**
  - **GO TO THE LIBRARY WHEN YOU ARE WRITING A RESEARCH PAPER!**

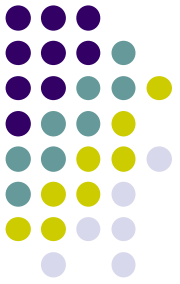


- **Go to the college's library, go to your local public library, go to any library.**
- **Librarians are great people who are there to help you.**
- **They can show you how to...**
  - **search for books on your topics;**
  - **search for journal and magazine articles;**
  - **use reference materials;**
  - **access electronic data bases, such as EbscoHost and Infotrac, using key word searches**
  - **evaluate web sites.**



- **Speaking of web sites... Even if you have Internet access on your home computer, you should still visit a library. Let's play "True or False."**
  - **The Internet has been called an information highway. TRUE.**
    - **It is free.**
    - **It is vast.**
    - **It is democratic.**
    - **It is accessible 24 hours a day.**
    - **Anyone can post anything.**
  - **You can believe everything you read on the Internet . FALSE.**

# Bringing Research Into Your Paper

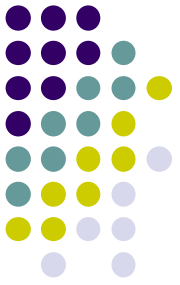


- **Points to Remember**
- **What Are Sources?**
- **What Are Citations?**
- **Quoting**
- **Paraphrasing**
- **Summarizing**
- **Avoiding Plagiarism**

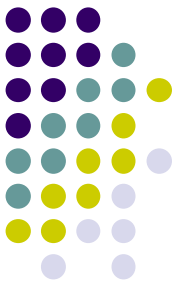


# Points to Remember

(About Writing a Research Paper)



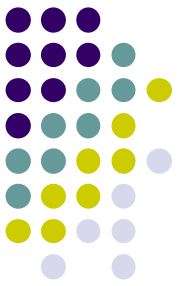
- **Writing a research paper is like writing any other academic paper, with the difference that you are bringing into your essay the words, ideas, and theories of others, often experts in that field of study.**
- **In the process of writing your research paper, you will learn a new set of vocabulary words and concepts.**
- **What follows is a list of these words/concepts and their definitions. Becoming familiar with them will help you in the research process.**



# What Are Sources?

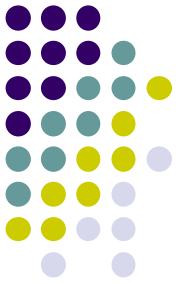
- **A source is what you turn to for information about your topic.**
- **A source can include any of the following:**
  - **a book**
  - **a magazine or newspaper article**
  - **a scholarly journal article**
  - **a film, television show, or radio program**
  - **a web site**
  - **a personal interview**
- **They generally fall under print sources, non-print sources, and electronic sources.**

# Print Sources



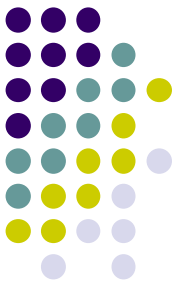
- A print source can be a periodical or a non-periodical.
  - A periodical is a publication that is issued periodically, such as any of the following:
    - a newspaper (The Boston Globe);
    - a magazine (Newsweek);
    - a journal (Journal of Naturopathic Medicine).
  - A non-periodical most often refers to a book.

# Non-Print Sources



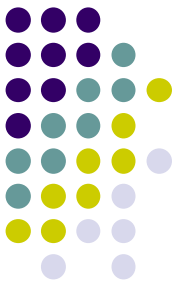
- **A non-print source can include, but is not limited to, any of the following:**
  - **a television or radio program**
  - **a film**
  - **a personal interview**
  - **a class lecture**
  - **a recording**

# Electronic Sources



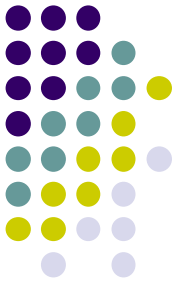
- **An electronic source can refer to a source found on the Internet, such as a personal or professional web site.**
- **There are some electronic sources that originally appeared in print form. These include articles found on databases such as EbscoHost and Infotrac and articles in newspapers and magazines that publish on the web and in print.**

# What is a Citation?



- **When you bring research (quotations, paraphrases, facts, statistics, etc.) into your paper, you must give credit to the source and its author(s).**
- **Giving credit to a source is also called citing a source.**
- **You do this with in-text or parenthetical citations. They are called parenthetical citations because the bibliographic information goes inside parentheses.**

# What to Cite

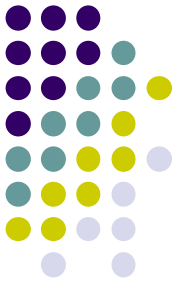


- **Quotations: Someone else's exact words, enclosed in quotation marks.**
- **The ideas, opinions, and theories of someone else—even if you restate them in your own words in a paraphrase or summary.**
- **Facts and statistics—unless they are common knowledge and are accessible in many sources.**

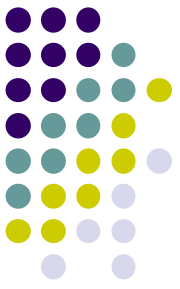


- **Common Knowledge is information that can be found in many sources and that no one can claim owning. It is information that “belongs” to everyone. Often, it is the stuff of encyclopedias. Examples:**
  - **6 million Jews perished in the Holocaust.**
  - **The Empire State Building is 1,454 feet tall.**
  - **The Civil War ended in 1865.**
- **You may not have known this before you started your research, but it is still common knowledge. Often, you will encounter knowledge that is common in your field of study, even if the general population may not know it.**

# Quoting



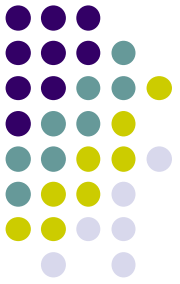
- **When you quote, you borrow an author's exact words.**
- **Use a quotation when...**
  - **the wording is so memorable or expresses a point so well that you cannot improve or shorten it without weakening it;**
  - **when the author is a respected authority whose opinion supports your own ideas;**
  - **when an author challenges or disagrees profoundly with others in the field.**



# Paraphrasing

- **Paraphrasing is putting material (including major and minor points) into your own words and sentence structure.**
- **You can paraphrase a theory, an idea, the results of a study, or a passage in an original source, as long as you use your own words to describe it.**
- **A paraphrase is often the same length as the original, but it is in your own words.**

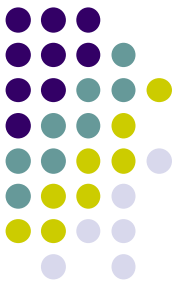
# Example of a Paraphrase



- **Original Text** (from James C. Stalker, “Official English or English Only”)  
“ We cannot legislate the language of the home, the street, the bar, the club, unless we are willing to set up a cadre of language police who will ticket and arrest us if we speak something other than English” (21).
- **Paraphrase**  
Stalker points out that in a democracy like the United States, it is not feasible to have laws against the use of a language and it certainly would not be possible to make police enforce such laws in homes and public places (21).

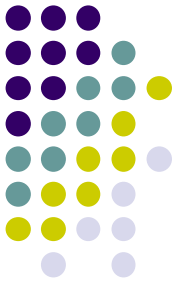
*Example taken from Pocket Keys for Writers  
by Ann Raimés*

# Summarizing



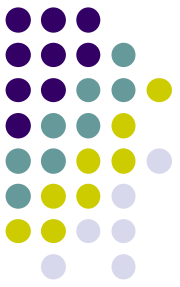
- **Summaries are often less detailed than paraphrases.**
- **In a summary, you provide your reader with the gist of the most important sources you find in your own words.**
- **Summaries give readers basic information and are always in your own words.**
- **When you include a summary in your paper, introduce the author's name and/or the work.**

# What is Plagiarism?



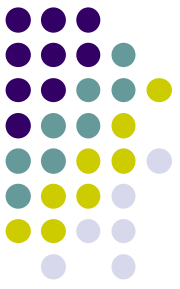
- **It is fine to bring the words and ideas of other writers into your paper.**
- **However, when you do so, you must acknowledge your debt to the writers of these sources.**
- **If not, you are guilty of plagiarism, a serious academic offense.**

# The Most Egregious Form



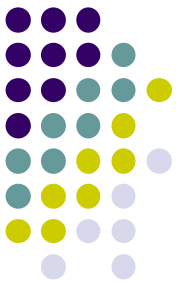
- **The most blatant and egregious form of plagiarism is putting your name as the author of a paper you did not write.**
- **The Internet has certainly made it easier for students to find papers on any number of topics.**
- **However, professors also know how to use the Internet and are quite adept at searching the same sites that students use.**

# The Subtle Forms

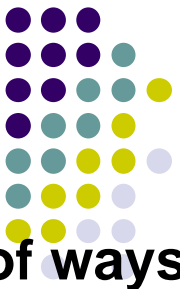


- **Other types of plagiarism are more subtle and include any of the following:**
  - **failure to cite quotations and borrowed ideas;**
  - **failure to enclose borrowed language in quotation marks;**
  - **failure to put summaries and paraphrases into your own words.**
- **Most students who plagiarize are simply unaware of the proper way to document sources in academic writing.**

# Avoiding Plagiarism



- **In order to avoid plagiarism, be sure that you not only give credit where credit is due, but that you follow the appropriate formats, often either MLA (Modern Languages Association) or APA (American Psychological Association) styles of documentation.**
- **There are also several good publications available with which students should be familiar. They will be mentioned later in this presentation.**

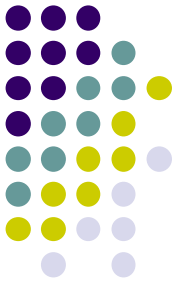


- **The following signal phrases are good examples of ways you can introduce the findings of your research in your paper:**
  - **According to...**
  - **In the words of...**
  - **In a recent study by...**
  - **Current research proves that...**



- **Avoid overusing the verb “said” in your paper. Here is a list of strong, active verbs that you can use in your signal phrases.**
- **You can write that someone...**
  - **acknowledges, adds, admits, or agrees**
  - **argues, asserts, claims, or comments**
  - **confirms, believes, declares, or implies**
  - **insists, notes, observes, or points out,**
  - **reports, states, theorizes, or writes**

# Proofreading Strategies

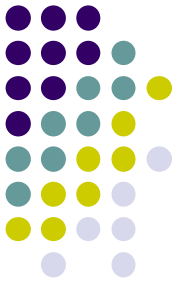


- **How to Make Your Paper Perfect (or at least your best work)**

- **Time**
- **Patience**
- **Will**
  - **Time**
  - **Patience**
  - **Will**
    - **Time**
    - **Patience**
    - **Will**



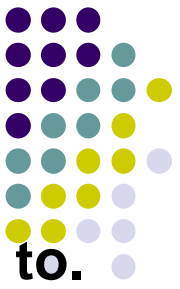
# Time



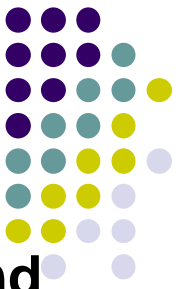
- **Proofreading takes time.**
  - **There is no way around it. Once you have begun to finalize your paper, you need to give yourself ample time to read it over (and over) again.**
  - **Proofreading is another kind of writing. It is not as creative, perhaps, as brainstorming or developing your ideas, but it is still a part of the writing process.**
  - **Reading your paper one time through is not adequate proofreading.**
  - **Here are some tips.**



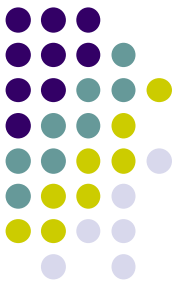
- **Don't wait until the night before a paper is due to proofread it; you won't be allowing yourself enough time to correct it.**
- **Always correct a hard (paper) copy of your essay; you will catch things on paper that you can't on screen.**
- **Read through your paper—not for meaning but for clarity and presentation.**
  - **You've already developed meaning in earlier drafts—proofreading is about making sure that your meaning is clear.**



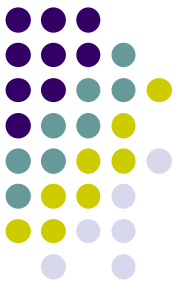
- **Decide on the areas that you should pay attention to. For instance...**
  - **Punctuation**
  - **Spelling**
  - **In-text citations**
- **For each of these areas, read through your paper at least once, paying attention to only one area at a time.**



- **Go back to the computer after several readings and make corrections on the screen.**
- **Print out another clean copy.**
- **Ask a friend, parent, or tutor, to be a second set of eyes.**
  - **This is not cheating; it is common sense.**
  - **Even great writers get help.**



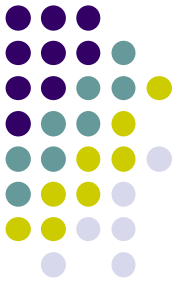
- **Read the paper backwards, sentence by sentence.**
  - **Sounds crazy?**
  - **It works.**
  - **Out of context, sentences with problems stand out in ways they don't when you are reading along for meaning.**



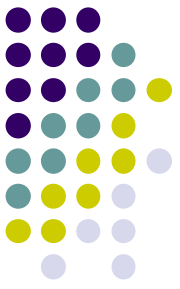
# Patience

- Does this method sound like a lot of work?
- It is.
- **Have patience with yourself. The more you write the better writer you will become. You will make less mistakes and get better at catching the inevitable ones.**
- **Hey, we're human; we all make mistakes occasionally. However, skillful proofreading eliminates many of the most common mistakes.**

# Will



- **Writing (even a research paper) is a craft.**
- **Mastering the craft requires practice and hard work.**
- **Most of the mistakes that students make are made out of carelessness. Once the mistake is pointed out, they know how to fix it and why it's wrong.**
- **Those students who take the time are able to produce polished final drafts that reflect intelligence, thoughtfulness, care, and hard work—qualities professors and future employers value.**



# Confucius says...

**“I hear, and I forget.  
I see, and I remember.  
I do, and I understand.”**

**The more you write—the more research papers you write—the easier writing will be and the better writer you will become.**

**This is the truth!**

***Good luck!***