In,this next module, we're going to talk about the pre writing step.,This is the step,where you get organized and put all your information at your fingertips.,The pre writing step is all about getting organized.,I'm going to try to get you out of the habit of writing and gathering information simultaneously.,I've talked a bit about this before, but I love to tell the story about when I was a graduate student.,Whenever I was working on a manuscript as a graduate student, if you walked into my office, you would see that my office was blanketed with papers.,There'd be three papers on the printer, two on the filing cabinet, three spread out on the floor behind my chair.,A couple paper spread out under my desk, a couple spread out over my desk.,There'd just be papers everywhere, and I'd have a good sense of where each paper was located.,God forbid anybody come in and rearrange my papers, because I knew where they all were, my writing process would look something like this.,As I'm writing the discussion section, I might realize, oops, now I need to get a piece of information from that clinical trial by Smith Atel.,Where's that paper? Oh, that paper's on top of the filing cabinet.,Okay, I pull the paper down, rifle through it, find the fact I need carefully put the paper back on the filing cabinet.,Then I would type that piece of information into my computer, into my word document, and it would keep going like this.,And it was a really long drawn out process.,Notice how I wasn't doing any writing that whole time.,I was just looking for information.,Now, I've dated myself a bit here, because I realized that people don't use hard copies anymore,, but there is a digital equivalent of this, where you're toggling between Google and Pubmed and email to find your information.,This is a painful way to write.,I dreaded having to write. When I was a graduate student.,I'd go on these long bike rides to procrastinate.,I even rode across France once I had more time as a graduate student so I could get away with that kind of procrastination. But as I got more serious about writing, and started writing for non academic publications with serious deadlines, I quickly realized that this writing process wasn't going to cut it.,I had to come up with a much more efficient way to write.,I learned that I had to gather and organize my information before I sat down to write the 1st draft.,So I came up with my own organizational system.,What I do is I collect and read through lots of manuscripts and documents, and as I'm reading them,, I extract key pieces of information, whatever statistics, details, ideas that I think I might use in my final draft.,I also pick out good quotes, if I've interviewed people for the story.,I dump all of these into a single, ongoing word document.,At the end, I end up with this really long word document.,And I move the material around in the word document to get it organized.,I lay out the sections of my story, ,and I move the material around so that all of the details and quotes and references pertinent to a particular section are altogether in the same place in the word document.,I also file all of my original sources into folders in case I need to find them again later.,But I end up with a word document that contains basically all of the details and information that I am going to need to write, ,and these details are laid out roughly into different sections of the story.,Now think about your own organizational system.,If you don't have a good organizational system, then create one that suits you.,Find what works for you. But take some time.,Spend some time thinking about how you can get yourself organized.,A lot of people feel like is a waste of time, uh, to spend time organizing, but it's not.,It will save you so so much time down the road.,If you have an efficient system for organizing your thoughts ahead of time, if you spend more time organizing before you start writing, your writing will be less painful.,You'll spend less time in that step that's really hard, which is the composing prose step, and what you write will come out to be much more organized. You want to develop some kind of road map.,I use the term road map as opposed to outline.,A road map is like an outline, but it lays out the sections of the paper in very broad terms.,There's no A-B-C, one, two, three.,That's too much trouble. But before I sit down to write, I have an idea of what's going in each section of the paper, and roughly what's going in each paragraph in that section.,I know, e.g., that this section,of my article is going to be about x and y, so I have all the information pertinent to X and Y in that key part of the word document in my roadmap.,Now, here's an example of one of my road maps.,I took a screenshot to show you what my roadmap looks like.,Notice that my word document here shows pages 30 to 33.,This word document is actually probably 60 pages long.,I just throw things into the word document as they come along.,I won't end up using all of this at the end of the day, but when I rearrange it and put it in all the right bins, I'll at least know all of the information that I have here.,I was writing a magazine story about how bios statistics is a hot field.,That was a particularly enjoyable article for me to write.,Since the other thing I teach at Stanford besides writing, is statistics, I knew I was going to have a section in that article about the history of bio statistics.,This was a feature story, so I interviewed people, and a lot of what you see in my road map is just quotes from the people I interviewed.,I highlighted my favorite quotes, the ones I wanted to make sure got in the story.,And indeed, a couple of these quotes actually did make it into the final article.,So, uh, this is Brad Efron talking at the beginning here, and he says, people blundered around for 2000 years to decide whether A was better than B.,Another one of his quotes says, ,the general attitude that you ought to be quantitative and comparative in your thinking in medicine Is a very powerful idea that isn't natural to doctors,, or at least it wasn't from the Greeks into onto about 1930. So both of those quotes actually ended up in this section of the final article.,I also wanted to give some specific examples of early success stories, ,so I put some details here about Henry Caplin, who used bio statistics to help transform hodgkin's disease into a curable disease.,Notice that in my roadmap, I have all the dates and names and details that I need right there in my fingertips.,When I sat down to write that history section, I wrote it very quickly, because I already knew what was going in that section.,It was just a matter of putting it into prose.,Having this road map makes writing more efficient.,Besides getting your information organized, another thing you should be doing during the pre writing step is brainstorming and thinking about your piece, preferably away from the computer.,When you sit at the blank or document at your computer, it's a bit confining and inkst producing.,Often you don't get your best ideas when you're forcing yourself to sit at that computer.,So here's something I like to do.,I'm a busy person. I need to be very efficient with my time, so I do a lot of writing and pre writing.,While I'm exercising, I will think about how a piece is going to be structured.,I'll think about what the main take home messages are.,It's great, because when you're exercising, your brain just wanders, and it gives you an opportunity to make new connections or come up with a structure for your story.,Sometimes I come up with my most memorable lines, or a really good word that I know I'm going to end up using in my piece.,One time, I was doing a feature story, and while I was out running, I was thinking about this one scientist and how he had just fallen into this research area.,And I thought of the word serendipity.,That's just the perfect way to describe it.,So that word ended up in my piece, and when my editor was editing that story, he actually picked up on that word and said, that's a great way to put it.,He ended up having me framed the whole paragraph around serendipity. So that word turned out to be very powerful.,You can also brainstorm while you're driving.,I do a lot of brainstorming during my commute.,I even pack a tape recorder, and I will talk out sections of my story into the tape recorder and then write them down when I get home.,Just like when you're exercising, your mind tends to wander when you're driving, and this freedom can lead you to new ideas and new connections.,So whenever I'm working on a big feature story, I force myself to turn off NBI in my car so I can use that time to work through my story.,If I'm waiting for an appointment or standing in line, I often use this time to mull over a piece, too.,E.G. this week I had an appointment, and I was waiting for a few minutes for my appointment, ,and as I was sitting there, my mind was kind of chewing over this feature story I'm working on about validation.,And suddenly it just came to me what the crooks of that story is.,So I rifled around in my purse, found a little piece of scrap paper, and started madly scribbling notes, because I got the crooks of the story.,And that never would have come to me had I just been sitting there at the computer, you know, waiting for it to to strike me.,So a lot of pre writing can be done away from the computer while you're multitasking.,Finally, pre writing is about organization, so I want to give you some tips for organizing your paper.,This may seem obvious, but like ideas should,be grouped. If you've got multiple paragraphs talking about the same thing,,they should all be collapsed into a single paragraph, or at least the paragraphs should be a budding one another, should be close together.,Often, when I'm editing papers,, I'll find the same topic discussed in multiple different paragraphs strewn throughout the paper, and I tell students to move them together, and this often reveals unnecessary repetition.,Another tip is, when you're discussing controversies, as we often do in scientific papers, don't bait and switch your reader too many times.,Authors typically will present here's argument A, here's the counter argument A, and here's the rebuttal to the counter argument. And then let me start that whole sequence again for P and then let me do it again for C it's hard on the reader if you go back and forth pro and con, pro and con too many times.,A better way to organize those discussions is to put all of the pro arguments 1st, then all of the counterarguments, then all the rebuttals.

在下一个模块中，我们将讨论预写步骤。这是你整理好所有信息并触手可及的步骤。写作前的步骤就是要井井有条。我会努力让你摆脱同时写作和收集信息的习惯。我之前已经谈过这个问题，但我很想讲讲我读研究生时的故事。每当我读研究生时正在写手稿时，如果你走进我的办公室，你会发现我的办公室里到处都是论文。打印机上会有三张纸，两张在文件柜里，三张放在我椅子后面的地板上，几张纸散布在我的办公桌底下，几张纸散布在我的办公桌上。到处都是报纸。而且我会很好地了解每篇论文的位置。上帝禁止任何人进来重新整理我的报纸，因为我知道它们都在哪里。我的写作过程看起来像这样。在我写讨论部分的时候，我可能会意识到，哎呀，现在我需要从史密斯等人的临床试验中获得一些信息。那张报在哪里？哦，那张报在文件柜的顶部。好吧。我把纸拉下来，用枪穿过它，找到我需要的事实，小心翼翼地把纸放回文件柜里，然后我会把那条信息输入我的电脑，写进我的Word文档里。而且它会一直这样下去。这是一个非常漫长、旷日持久的过程。注意我一直都没写任何东西。我只是在寻找信息。现在，我在这里约会了一下，因为我意识到人们不再使用硬拷贝了。但是有一个数字等效物，你可以在谷歌和PubMed以及电子邮件之间切换，以查找你的信息。这是一种痛苦的写作方式。当我还是个研究生的时候，我害怕必须写作。我会为了拖延而长途骑自行车。我甚至曾经骑车穿越过法国。作为一名研究生，我有更多的时间，这样我就可以摆脱这种拖延了。但是，当我越来越认真地对待写作，开始为截止日期严格的非学术出版物写作时，我很快意识到这种写作过程是行不通的。我必须想出一种更有效的写作方式。我了解到，在我坐下来写初稿之前，我必须收集和整理信息。于是我想出了自己的组织系统。我所做的是收集和通读大量的手稿和文档，在阅读它们时，我会提取一些关键信息，包括统计数据、细节、想法，我想我可能会在最终草稿中使用这些信息。如果我为这个故事采访过别人，我也会挑选好名言。我把所有这些都转储到一个正在进行的Word文档中。最后，我得到的是一个非常长的Word文档，为了让它井井有条，我在Word文档中四处移动材料。我布置了故事的各个部分，然后四处移动材料，这样与特定部分有关的所有细节、引文和参考文献都集中在Word文档的同一个位置。我还将所有原始来源归档到文件夹中，以备日后需要再次查找。但是我最终得到了一个Word文档，其中基本上包含了我需要写的所有细节和信息，这些细节大致分为故事的不同部分。现在，想想你自己的组织系统。如果你没有一个好的组织系统，那就创建一个适合你的组织系统。找出适合你的东西。但是花点时间，花点时间思考如何让自己井井有条。很多人觉得花时间整理是在浪费时间，但事实并非如此。如果你有一个高效的系统来提前组织你的想法，它将为你节省很多时间。如果你在开始写作之前花更多的时间整理，你的写作就会减少痛苦，在那个非常困难的步骤上花更少的时间，也就是写散文的步骤，而且你写的东西会更有条理。你想制定某种路线图。我使用路线图一词而不是大纲。路线图就像大纲，但它以非常宽泛的措辞列出了论文的各个部分。没有A、B、C、1、2、3—这太麻烦了。但是在我坐下来写作之前，我已经了解了论文的每个部分发生了什么，以及该部分中每个段落的大致情况。例如，我知道我的文章的这一部分将是关于X和Y的，所以我的路线图中有Word文档的关键部分中与X和Y有关的所有信息。现在，这是我的一个路线图的示例。我拍了一张屏幕截图来给你看我的路线图是什么样子。请注意，我的Word文档显示的是第30页到第33页。这个Word文档实际上可能长达60页。我只是随便把东西放进Word文档里。归根结底我不会用完所有这些，但是当我重新排列它然后把它放在所有正确的垃圾箱里时，我至少会知道我所拥有的所有信息。在这里，我在杂志上写一篇关于生物统计学如何成为热门领域的报道。对我来说，这是一篇特别愉快的文章，因为除了写作之外，我在斯坦福大学教的另一件事就是统计学。我知道我会在那篇文章中写一节关于生物统计学历史的文章。这是一个专题报道，所以我采访了其他人，你在我的路线图中看到的很多内容只是我采访的人的名言。我重点介绍了我最喜欢的名言，我想确保这些名言出现在故事中。事实上，这些引文中有几句确实出现在最后一篇文章中。所以，这是布拉德·埃夫隆一开始在这里说话，他说：“人们在决定A是否比B好时犯了两千年的错误。”他的另一句话说：“在医学思维中你应该进行量化和比较的普遍态度是一个非常有力的想法，对医生来说并不自然，或者至少从希腊人到1930年左右都不是这样。”因此，这两句话实际上都出现在最后一篇文章的这一部分中。我还想举一些早期成功案例的具体例子。因此，我在这里详细介绍了亨利·卡普兰，他使用生物统计学来帮助将霍奇金氏病转化为一种可治愈的疾病。请注意，在我的路线图中，我需要的所有日期、名称和详细信息都触手可及。当我坐下来写那个历史部分时，我写得很快，因为我已经知道那部分发生了什么。这只是把它写成散文的问题。有了这个路线图可以提高写作效率。除了整理信息外，在写作前阶段你还应该做的另一件事是集思广益，思考你的作品，最好远离电脑。当你坐在电脑上的空白Word文档前时，它有点局限和焦虑。当你强迫自己坐在那台电脑前时，你往往得不到最好的想法。所以这是我喜欢做的事情。我是一个忙碌的人。我需要非常有效地利用自己的时间，所以我在锻炼的同时会做很多写作和预写。我会考虑一件作品的构造方式。我会考虑一下主要的带回家信息是什么。这很棒，因为当你锻炼时，你的大脑只是在徘徊，它让你有机会建立新的联系或为你的故事想出一个结构。有时候，我会想出我最难忘的台词或者一个我知道自己最终会在作品中使用的非常好的词。有一次，我在做一个专题报道，当我跑出去的时候，我在想这位科学家，以及他是如何进入这个研究领域的。我想到了serendipity这个词——这只是描述它的完美方式。所以那个词最终出现在我的文章中。当我的编辑编辑那个故事时，他实际上拿起那个词说：“这是个很好的表达方式。”他最后让我围绕偶然性来构思整段话，所以事实证明这个词非常有力。你也可以在开车时进行头脑风暴。我在上下班途中经常进行头脑风暴。即使我现在也带了一台录音机然后我会在录音机里讲出我故事的某些部分然后回家后把它们写下来。就像你锻炼时一样，开车时你的思想往往会徘徊，这种自由可以引导你产生新的想法和新的联系。因此，每当我写一篇大型专题报道时，我都会强迫自己关闭车里的美国国家公共电台，这样我就可以利用这段时间来完成我的故事。如果我在等预约或排队，我也经常利用这段时间来仔细考虑一篇文章。例如，本周我预约了，我等了几分钟才预约。当我坐在那里的时候，我的脑海里有点在咀嚼我正在写的关于验证的专题报道。突然间，我想到了那个故事的症结是什么。于是我在钱包里四处闲逛，发现了一小块废纸，然后开始疯狂地涂笔记，因为我明白了故事的症结所在。你知道，如果我只是坐在电脑前等着它击中我，那永远不会出现在我身上。因此，当你进行多任务处理时，很多预写工作都可以在电脑之外完成。最后，预写是关于组织的，所以我想给你一些整理论文的技巧。这看似显而易见，但应该对想法进行分组。如果你有多个段落在谈论同一件事，那么它们应该全部折叠成一个段落，或者至少这些段落应该彼此相邻，应该靠得很近。通常，当我编辑论文时，我会在整篇论文中散布在多个不同的段落中发现相同的话题。我告诉学生将他们移动到一起，这常常会显示出不必要的重复。另一个提示是，当你讨论争议时，就像我们在科学论文中经常做的那样。不要诱饵和切换读者的次数太多。作者通常会提出：“这是论点A；这是对A的反驳；这是对反驳的反驳。然后让我为B重新开始整个序列，然后让我为C再做一次。”如果你来回走动，赞成和反对，赞成和反对，次数太多，对读者来说会很难。组织这些讨论的更好方法是将所有赞成论点放在首位，然后是所有的反驳，然后是所有的反驳。这对读者来说往往更容易。