I'm going to end this unit with a few tips on grammar. This is certainly not a course that focuses on grammar, but there are a few little grammar tips that I want to point out to you because they are especially relevant to scientific manuscripts.

The first one has to do with the word data. You may not realize, but the word data is actually plural. You don't say the data is or the data shows you say the data are, or the data show. Most people get this wrong in speaking and in writing, so it's just something you have to teach yourself. After years of editing this, now only the plural form sounds right in my head, but it took me a while to get used to it. So you would say these data show the data support the data are critical. You would only use the singular form if you were talking about one data point, a datum, which we hardly ever do.

Be careful about the use of effect versus effect. It's very easy to mix these two up, and it may not be caught by your grammar checker. Affect with an A is the verb form. An effect with an E is the noun form. Affect is the verb to influence, effect is the noun form of this influence. So you would say the class affected her, or you would say the class had an effect on her. Now, there are some exceptions. I just want to point out that in general, affect is the verb, and effect is the noun. But there are a couple of other exceptions. I'm going to point them out just for fun. Affect does have a noun form. It's hardly used outside of psychology. But in psychology, affect denotes a feeling or an emotion or an expression. There's also a verb form of effect. Again, it's only used in a very specific case, but you can say that someone effected a change. This means they brought about a change. Those are the exceptions. But in general, affect is the verb form, and effect is the noun form. This error is common. This is actually a headline from a newspaper. I saw this a few years back. Some editor got it wrong. It says, terrorist plots Effect the new beauty industry. Well, of course we want not effect there, but the verb form affect. Now, your scientific manuscript is not going to be rejected just because you make a small grammar mistake like this, but it shows professionalism if you get these things right, and it shows sloppiness if you don't.

Here's another one that a lot of people don't know. There's actually a difference between compared to and compared with. Compared to is used when you want to point out similarities between different things. And this is a less common use. You might use it when you're making metaphors. So the classic example is, shall I compare THEE to a summer's day? You're comparing a person to a summer's day?, Those things are very different, and you're trying to find something similar between them. In the sciences, we almost always want to use compared with. Compare with means that you're pointing out differences between similar things, which is usually what we're doing in science. We might be comparing two groups of mice or two tumors. For example if we say brain tumors are relatively rare compared with more common cancers, such as those of the lung, breast and prostate compared with is correct here, because we're comparing things that are similar different types of tumors and finding differences between them. Again, in science, you almost always want to use compared with and not compared to. So watch out for that one.

The use of that in which often gets confused. So pay attention to this one. I edit this a lot. That is used when you have a restrictive or essential cause, and which is used when you have a non-restrictive or non-essential cloth. The easiest way to get this right is to recognize that clauses with which are set off with commerce and causes with that are not set off with commas. And let me give you an example. Here are two sentences. The vile that contained her RNA was lost. When you use that, the vile that container RNA was lost, you are saying that there is your implying that there is more than one vile. So the violet contained her RNA was lost, but maybe the vile that contained her DNA wasn't that descriptor that contained her RNA is essential, because there are multiple vials, and you have to tell me which one you're talking about. Compare that to the second sentence. The vial which contained her RNA was lost in that sentence. There's only one violent question. Everybody knows what vile we're talking about. There's only one. Since there's only one violent question, the fact that it contains her RNA is not essential. That's extra information. So we can set it off with commas, or even remove it entirely, and it doesn't change the meaning.

I'll give you some more examples of that, versus which this was the sentence I was editing. It says, other disorders which have been found to co-occur with diabetes include heart disease and foot problems. Uh, the Witch is not correct here, because have been found to co-occur with diabetes. Is an essential clause. So instead of, which we needed that there. And I think the authors realized that because they did not set the have been found to co-occur with diabetes off with commas, so they knew it was essential material .There We're specifically talking about disorders that have been found to cook or with diabetes, so that material is essential. So we have to use that.

The key question to ask yourself in trying to get this right is, is your cause essential or non-essential? If it's essential, you can't eliminate the cause from the sentence without changing the meaning. In that case, you use that. If it's non-essential information, it can be set off with comments, and it can be illuminated from the sentence without altering the meeting. And then you use which.

One more example. Notice the difference between these two. The bike that is broken is in the garage. That implies that there is more than one bike. The bike that's broken is in the garage, but the one that's working, maybe that one is in the driveway. It identifies one bike out of many. So the fact that it's broken, as opposed to not broken, is essential information. It identifies which bike we're talking about. Compare that to the second sentence the bike which is broken is in the garage. In this case, there's a case there's only one bike in question, and we are just adding an extra piece of information about that particular bike it happens to be broken. It's not essential information, because there's only one bike that we're talking about. So we can set it off with comments, and we use which.

Oh, once again, mention the elements of style by Strong and White. That's a great book to pick up if you have time. They say, careful writers, watchful for small conveniences. Go witch hunting, remove the defining witches, and by doing so, improve their work.

And just to show you that even some of the best writers get these little grammar things wrong, The late physicist Richard Feynman was a wonderful writer, also a wonderful researcher. I'll be using some examples from his writing in this course as examples of good writing. But here's something he had written When we say we are a pile of atoms, we do not mean we are merely a pile of atoms, because a pile of atoms which is not repeated from one to the other might well have the possibilities which you see before you in the mirror. I notice that there are two witches in there. And notice they are not set off with commas. Those are actually essential causes. So both of those should have been that. It should be that and that. So even the best of us gets these things wrong occasionally, but pay attention and try to get them right when you can.

One more example something I was editing. Stroke incidents data are obtained from sources which use the ICD classification systems. The authors set off the which use the ICD classification systems with commas here. But actually, you can see that that comma, that pause is kind of funny. There shouldn't be a pause. This is not extra information. We need to be told what sources were talking about. And you can see that, because if you just stopped the sentence that stroke incidents data are obtained from sources, it wouldn't make any sense. It leaves the reader hanging. The type of sources is essential up. So we have an essential cause. We don't want to set it off with commas, and we want to use that. So we would say stroke incidents data are obtained from sources that use the ICD classification systems.

Finally, one last thing to pay attention to is the use of the pronouns they or there When the subject of your sentence is singular, you want to have agreement here. So if you say each student worries about their grade, that's actually incorrect. It should be each student worries about her grade, or each student worries about his grade. I think this one's tricky, uh, because in order to do this right, you have to make a gender choice. So if you want to keep the whole thing singular, you're going to have to choose he or she, or him or her, and you could write, he\her, but that gets a little awkward, and so oftentimes that's why we end up choosing there or they instead. So my recommendation to get around this issue is just to avoid using the singular When you find yourself in this situation, instead of saying, each student worries about her grade, or each student worries about his grade, or each student worries about his her grade, just turn it into the plural and say, all students worry about their grades. That's a way to avoid having, a disagreement here.

我将以一些语法小贴士来结束本单元。这当然不是一门以语法为重点的课程，但是我想向你指出一些小语法技巧，因为它们与科学手稿特别相关。第一个与data这个词有关。你可能没有意识到，但是data这个词实际上是复数的。你不是说数据是，或者数据显示你说数据是，或者数据显示。大多数人在口语和写作中都会犯错，所以这只是你必须自学的东西。经过多年的编辑，现在只有复数形式在我的脑海中听起来正确，但我花了一段时间才习惯。所以你会说这些数据表明，数据支持，数据是至关重要的。只有当你谈论一个数据点，一个基准时，你才会使用单数形式，而我们几乎从来没有这样做。使用效果与效果时要小心。将这两者混在一起很容易，而且你的语法检查器可能无法捕捉到。带有A的影响是动词形式，带有E的效果是名词形式。影响是影响力的动词，效果是这种影响的名词形式。所以你会说这堂课影响了她，或者你会说这堂课对她产生了影响。现在有一些例外。我只想指出，总的来说，effect是动词，effect是名词，但也有几个例外。我要指出它们只是为了好玩。Affect确实有名词形式。它在心理学之外很少使用，但在心理学中，情感是指一种感觉、一种情感或一种表情。还有一种动词效果形式。再说一遍，它只用于非常具体的情况，但你可以说有人进行了更改。这意味着他们带来了改变。这些都是例外，但总的来说，effect是动词形式，effect是名词形式。这个错误很常见。这实际上是我几年前看到的一家报纸的标题。有些编辑弄错了。它说恐怖阴谋影响了美容行业。好吧，当然，我们想要的不是效果而是动词形式的影响。现在，你的科学手稿不会仅仅因为你犯了这样的小语法错误而被拒绝，但是如果你把这些事情做对了，它就会表现出专业精神，如果你不做对就会表现出草率。这是另一个很多人不知道的。实际上，与之比较是有区别的。当你想指出不同事物之间的相似之处时，会使用比较，但这种用法不太常见。当@@你做隐喻时，你可能会用它。所以典型的例子是：我可以把它比作夏日吗？你是在将一个人与夏日的日子进行比较。这些东西有很大的不同，你正在努力在它们之间找到相似的东西。在科学中，我们几乎总是想使用与之相比。与之比较意味着你是在指出相似事物之间的差异，这通常是我们在科学界所做的。我们可能正在比较两组小鼠或两种肿瘤。例如，如果我们说“与肺癌、乳腺癌和前列腺癌等更常见的癌症相比，脑肿瘤相对罕见。与之比较在这里是正确的，因为我们在比较相似的东西、不同类型的肿瘤，并发现它们之间的差异。再说一遍，在科学中，你几乎总是想使用与之比较而不是与之比较。所以要当心那个。它的用法和哪个经常会让人感到困惑，所以要注意这个。我经常编辑这个。当你有限制性条款或基本条款时，就会使用它，当你有非限制性条款或非必要条款时，就会使用它。要做到这一点，最简单的方法是识别用逗号分隔的子句和用逗号分隔的子句不是用逗号隔开的。让我给你举个例子。这里有两句话。装有她RNA的小瓶丢失了。当你用那个装有她RNA的小瓶丢失时，你是在说，你暗示有不止一个小瓶。因此，装有她RNA的小瓶丢失了，但可能装有她DNA的小瓶没有。那个含有她RNA的描述符是必不可少的，因为有多个小瓶，你必须告诉我你说的是哪一个。将其@@与第二句话进行比较。装有她RNA的小瓶在那句话中丢失了，只有一个小瓶有问题。每个人都知道我们在说什么样的小瓶。只有一个。由于只有一个小瓶有问题，因此它含有她的RNA这一事实并不是必不可少的。这是额外的信息，因此我们可以用逗号将其隔开，甚至将其完全删除，它不会改变含义。我会再举几个例子来说明这与哪个的比较。这是我正在编辑的一句话。它说，其他已发现与糖尿病同时发生的疾病包括心脏病和足部问题。这里不正确，因为已被发现与糖尿病同时发生，这是一项必不可少的条款，因此我们需要一个问题来代替它。而且我认为作者意识到，由于他们没有将糖尿病与逗号同时发生，所以他们知道这是必不可少的材料。这里我们特别谈论的是已发现与糖尿病同时发生的疾病，因此材料是必不可少的，所以我们必须使用它。在努力纠正这个问题时，要问自己的关键问题是，你的条款是必不可少的还是非必需的。如果是必不可少的，你就无法在不改变含义的情况下从句子中删除该子句。在这种情况下，请使用它。如果是非必要的信息，则可以用逗号隔开，并且可以在不改变含义的情况下将其从句子中删除，然后使用逗号。再举一个例子。请注意这两者之间的区别。坏掉的自行车在车库里。这意味着有不止一辆自行车。坏掉的自行车在车库里，但那辆能起作用的自行车可能在车道上。它可以识别出众多自行车中的一辆。因此，它已损坏而不是未损坏这一事实是必不可少的信息。它可以识别我们在说哪辆自行车。将其与第二句话进行比较。坏了的自行车在车库里。在这种情况下，只有一辆自行车有问题，我们只是在添加有关该特定自行车的额外信息。它碰巧坏了。这不是必需的信息，因为我们谈论的只有一辆自行车，所以我们可以用逗号来引导它然后使用它。我将再次提及Strunk and White的风格元素。如果你有时间，那是一本很棒的书。他们说谨慎的作家，注意小便利，去猎巫，移除决定性的女巫，这样做可以改善他们的工作。只是为了向你表明，即使是一些最优秀的作家也会把小小的语法弄错了。已故物理学家理查德·费曼是一位出色的作家，也是一位出色的研究人员。在本课程中，我将用他写作中的一些例子作为优秀写作的例子。但是他写了一句话：“当我们说我们是一堆原子时，我们并不是说我们只是一堆原子，因为一堆没有从一个原子重复到另一个原子很可能会有你在镜子里看到的可能性。”注意里面有两个，注意它们不是用逗号隔开的。这些实际上是必不可少的条款，所以这两个条款都应该是这样。应该是那个和那个。因此，即使是我们当中最优秀的人偶尔也会把这些事情弄错，但要注意并尽量把它们做好。再举一个例子。我正在编辑的东西，“中风发病率数据是从使用ICD分类系统的来源获得的。”作者在这里用逗号开头“使用ICD分类系统”，但实际上你可以看到那个逗号，那个停顿有点滑稽。不应该停顿一下。这不是额外的信息。我们需要被告知我们在谈论哪些来源，你可以看出来，因为如果你在中风发病率数据是从来源获得的，那就没有任何意义了。这让读者望而却步。来源的类型是必不可少的。因此，我们有一个基本条款。我们不想用逗号来开头，我们想用逗号。因此，我们可以说：“中风发病率数据是从使用ICD分类系统的来源获得的。”最后，最后要注意的一件事是，当你的句子的主语是单数时，他们或他们的代词的使用。你想在这里达成协议。因此，如果你说每个学生都担心自己的成绩，那实际上是不正确的。应该是每个学生都读了自己的成绩，或者每个学生都担心自己的成绩。我认为这很棘手，因为为了做到这一点，你必须做出性别选择。因此，如果你想保持整件事的单一性，你必须选择他或她、他或她然后你可以把他的斜线写给她，但这会有点尴尬，而且通常这就是为什么我们最终会选择他们或他们。因此，我对解决这个问题的建议是，当你发现自己处于这种情况时，避免使用单数。而不是说每个学生担心自己的成绩，或者每个学生担心自己的成绩，或者每个学生担心自己的成绩。只要把它变成复数，然后说所有学生都担心自己的成绩。这是避免在这里出现分歧的一种方法。