第一讲　设定目标

随着中国高等教育的国际化，一方面中国学者及学生在英文期刊上发表科学论文的情况越来越普遍；另一方面到中国留学的外籍学生越来越多，倒逼着高校教师从事以英语为主要语言的专业教学，指导留学研究生使用英语进行科学论文及学位论文的写作。

虽然科研人员不应“唯论文论”，但掌握英文科学论文的写作方法、在英文期刊尤其是高质量期刊上发表科研成果，进行正常的国际学术交流，还是不可或缺的。

虽然中文期刊与英文期刊科学论文的写作方法相似，但两者之间还是存在着一些差异。从提高英文文献阅读质量和效率的视角，了解和熟悉英文科学论文的写作方法，也很有必要。

英文期刊种类繁多且鱼珠混杂，质量参差不齐。我们以众所熟知的 SCI/SSCI 期刊为标准，重点关注此类期刊科学论文的写作方法与技巧。

SCI/SSCI 期刊包括了自然科学、社会科学、艺术、人文科学等。学科之间尤其是人文社会科学等学科之间，论文写作方法差异很大。为了迅速掌握并且能够比较熟练的运用一种基本的科学论文写作方法，本书以景观生态与土地资源管理 *Landscape Ecology & Land Resources Management* 研究方向为例，重点介绍与之相关的 SCI/SSCI 期刊科学论文的写作方法与技巧。

对于初学者来说，论文发表的期刊，从影响因子数值看，通常是先小后大；从投稿训练及经验积累角度看，建议先大后小。推荐以中国科学院期刊分区为依据，优先考虑设定 2 区及以上期刊为投稿目标期刊。

以上，是为本书设定的讲授目标。

第一节　导师建议

一、研究生转型

进入研究生阶段，人们需要学会从学习思路和工作方法与技巧上进行改变。因为在这一阶段，考核标准不再是以考试成绩为标准了。研究生们需要学会独立思考，要逐步能够承担起创造性的研究工作。如果说，大家还处于迷茫困惑之中，不知道如何转变，就来看看诸多良师的建议吧。

Irving P. Herman[①] 是美国哥伦比亚大学（Columbia University in the City of New York）应用物理学与应用数学教授。2007 年他 Nature 上发表的一篇文章 Following the law：

① https://www.apam.columbia.edu/faculty/irving-herman

A guide for the perplexed graduate student doing research[①] 为学界所熟知，也即所说的赫曼法则 The Laws of Herman。

Herman 从导师的角度，基于研究生如何顺利完成学位论文出发，给出了 20 条建议：

1. *Your vacation begins after you defend your thesis.*

2. *In research, what matters is what is right, and not who is right.*

3. *In research and other matters, your adviser is always right, most of the time.*

4. *Act as if your adviser is always right, almost all the time.*

5. *If you think you are right and you are able to convince your adviser, your adviser will be very happy.*

6. *Your productivity varies as (effective productive time spent per day).*

7. *Your productivity also varies as (your delay in analysing acquired data).*

8. *Take data today as if you know that your equipment will break tomorrow.*

9. *If you would be unhappy to lose your data, make a permanent back-up copy of them within five minutes of acquiring them.*

10. *Your adviser expects your productivity to be low initially and then to be above threshold after a year or so.*

11. *You must become a bigger expert in your thesis area than your adviser.*

12. *When you cooperate, your adviser's blood pressure will go down a bit.*

13. *When you don't cooperate, your adviser's blood pressure either goes up a bit or it goes down to zero.*

14. *Usually, only when you can publish your results are they good enough to be part of your thesis.*

15. *The higher the quality, first, and quantity, second, of your publishable work, the better your thesis.*

16. *Remember, it's your thesis. You (!) need to do it.*

17. *Your adviser wants you to become famous, so that he/she can finally become famous.*

18. *Your adviser wants to write the best letter of recommendation for you that is possible.*

19. *Whatever is best for you is best for your adviser.*

20. *Whatever is best for your adviser is best for you.*

以上建议，其中第 1 条(关于休假)、第 6 条(科研产出与有效时间)、第 7 条(科研产出与拖延时间)、第 8 条(关于截止时间)、第 9 条(关于细心程度或治学态度)、第 15 条(发表论文与学位论文)、第 16 条(论文归属)，与研究生的转变紧密相关。

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① Following the Law, I. P. Herman, Nature 445, 228 (2007). https://www.apam.columbia.edu/faculty/irving-herman

类似的，美国阿拉巴马大学(University of Alabama at Birmingham)Matt Might[①] 教授逆向思维的，给出了 10 easy ways to fail a Ph. D[②] 的诠释(有删略)：

The attrition rate in Ph. D. school is high. Anywhere from a third to half will fail. In fact, there's a disturbing consistency to grad school failure. I'm supervising a lot of new grad students this semester, so for their sake, I'm cataloging the common reasons for failure. Read on for the top ten reasons students fail out of Ph. D. school.

1. ***Focus on grades or coursework***. *No one cares about grades in grad school.*

2. ***Learn too much***. *Some students go to Ph. D. school because they want to learn. Let there be no mistake: Ph. D. school involves a lot of learning. But, it requires focused learning directed toward an eventual thesis.*

3. ***Expect perfection***. *For students with problems starting on a paper or dissertation, my advice is that writing a paper should be an iterative process: start with an outline and some rough notes; take a pass over the paper and improve it a little; rinse; repeat. When the paper changes little with each pass, it's at diminishing returns. One or two more passes over the paper are all it needs at that point. "Good enough" is better than "perfect."*

4. ***Procrastinate***. *Ph. D. school seems to be a magnet for every kind of procrastinator. Unfortunately, it is also a sieve that weeds out the unproductive.*

5. ***Go rogue too soon/too late***. *Early on, the advisor should be hands on, doling out specific topics and helping to craft early papers. Going rogue before the student knows how to choose good topics and write well will end in wasted paper submissions and a grumpy advisor.*

6. ***Treat Ph. D. school like school or work***. *Ph. D. school is neither school nor work. Students that treat Ph. D. school like a 9-5 endeavor are the ones that take 7+years to finish, or end up ABD.*

7. ***Ignore the committee***. *It's important for students to maintain contact with committee members in the latter years of a Ph. D. They need to know what a student is doing.*

8. ***Aim too low***. *Some students look at the weakest student to get a Ph. D. in their department and aim for that. Aiming low leaves no room for uncertainty. And, research is always uncertain.*

9. ***Aim too high***. *A Ph. D. seems like a major undertaking from the perspective of the student. It is. But, it is not the final undertaking. It's the start of a scientific career.*

10. ***Miss the real milestones***. *Most schools require coursework, qualifiers, the-*

① https://matt.might.net/

② https://matt.might.net/articles/ways-to-fail-a-phd/

sis proposal, thesis defense and dissertation. These are the requirements on paper. In practice, the real milestones are three good publications connected by a (perhaps loosely) unified theme. Once a student has two good publications, if she convinces her committee that she can extrapolate a third, she has a thesis proposal. Once a student has three publications, she has defended, with reasonable confidence, that she can repeatedly conduct research of sufficient quality to meet the standards of peer review. If she draws a unifying theme, she has a thesis, and if she staples her publications together, she has a dissertation.

尽管表述不同,但第 4、第 6 以及第 10 条分别与 Heman 的第 7、第 1 和第 15 条的含义基本一致:都充分指出了科学论文写作在研究生阶段中的重要性,以及研究生在读期间需要完成(尤其是心态和工作学习习惯)的转型。

二、建议与鼓励

美国杜克大学(Duke University)教授 Michael Munger 写过一篇短文 10 *Tips on How to Write Less Badly*[①]。文中,他是这样鼓励哪些自认为没有写作天赋的学生的:

In my nearly 30 years at universities, I have seen a lot of very talented people fail because they couldn't, or didn't, write. And some much less talented people (I see one in the mirror every morning) have done OK because they learned how to write.

It starts in graduate school. There is a real transformation, approaching an inversion, as people switch from taking courses to writing. Many of the graduate students who were stars in the classroom during the first two years—the people everyone admired and looked up to—suddenly aren't so stellar anymore. And a few of the marginal students—the ones who didn't care that much about pleasing the professors by reading every page of every assignment—are suddenly sending their own papers off to journals, getting published, and transforming themselves into professional scholars.

The difference is not complicated. It's writing.

Rachel Toor and other writers on these pages have talked about how hard it is to write well, and of course that's true. Fortunately, the standards of writing in most disciplines are so low that you don't need to write well. What I have tried to produce below are 10 tips on scholarly nonfiction writing that might help people write less badly.

进而给出了比较适合初学者的 10 条建议(有删略):

1. ***Writing is an exercise.*** *You get better and faster with practice. If you were*

① Michael C. Munger. 2010, Sep. 6. 10 Tips on How to Write Less Badly. https://www.chronicle.com/article/10-Tips-on-How-to-Write-Less/124268

going to run a marathon a year from now, would you wait for months and then run 26 miles cold? No, you would build up slowly, running most days. You might start on the flats and work up to more demanding and difficult terrain. To become a writer, write. Don't wait for that book manuscript or that monster external-review report to work on your writing.

2. ***Set goals based on output, not input.*** *"I will work for three hours" is a delusion; "I will type three double-spaced pages" is a goal. After you write three pages, do something else. Prepare for class, teach, go to meetings, whatever. If later in the day you feel like writing some more, great. But if you don't, then at least you wrote something.*

4. ***Give yourself time.*** *Many smart people tell themselves pathetic lies like, "I do my best work at the last minute." Look: It's not true. No one works better under pressure. Sure, you are a smart person. But if you are writing about a profound problem, why would you think that you can make an important contribution off the top of your head in the middle of the night just before the conference?*

Writers sit at their desks for hours, wrestling with ideas. They ask questions, talk with other smart people over drinks or dinner, go on long walks. And then write a whole bunch more. Don't worry that what you write is not very good and isn't immediately usable. You get ideas when you write; you don't just write down ideas.

The articles and books that will be read decades from now were written by men and women sitting at a desk and forcing themselves to translate profound ideas into words and then to let those words lead them to even more ideas. Writing can be magic, if you give yourself time, because you can produce in the mind of some other person, distant from you in space or even time, an image of the ideas that exist in only your mind at this one instant.

7. ***Write, then squeeze the other things in.*** *Put your writing ahead of your other work. I happen to be a "morning person," so I write early in the day. Then I spend the rest of my day teaching, having meetings, or doing paperwork. You may be a "night person" or something in between. Just make sure you get in the habit of reserving your most productive time for writing. Don't do it as an afterthought or tell yourself you will write when you get a big block of time. Squeeze the other things in; the writing comes first.*

8. ***Not all of your thoughts are profound.*** *Many people get frustrated because they can't get an analytical purchase on the big questions that interest them. Then they don't write at all. So start small. The wonderful thing is that you may find that you have traveled quite a long way up a mountain, just by keeping your head down and putting one writing foot ahead of the other for a long time. It is hard to refine your questions, define your terms precisely, or know just how your argu-*

ment will work until you have actually written it all down.

10. ***Edit your work, over and over.*** *Have other people look at it. One of the great advantages of academe is that we are mostly all in this together, and we all know the terrors of that blinking cursor on a blank background. Exchange papers with peers or a mentor, and when you are sick of your own writing, reciprocate by reading their work. You need to get over a fear of criticism or rejection. Nobody's first drafts are good. The difference between a successful scholar and a failure need not be better writing. It is often more editing.*

If you have trouble writing, then you just haven't written enough. Writing lots of pages has always been pretty easy for me. I could never get a job being only a writer, though, because I still don't write well. But by thinking about these tips, and trying to follow them myself, I have gotten to the point where I can make writing work for me and my career.

按照 Munger 教授的建议，初学者是不是可以把“当自己处于最佳状态时，无论想法对与错，都能够坚持每天写一些，并不断修改完善，就一定可以成功”作为目标，设定起来，并且逐步将之分解为一个个小的目标呢？毕竟，滴水穿石、集腋成裘！

事实上，前文 Matt 教授第 3 条建议也同样指出，“意欲打磨好论文结构后才开始写作的学生，永远不会开始写作……我认为，写论文应该是一个不断重复的过程：列出研究框架和一些粗略想法，统一遍论文改进一些，然后修改、不断重复。”

因此，希望读者们能够从阅读本书伊始，结合自己的研究方向，与授课计划内容同步推进，在课程结束时，按照选定目标期刊(target journal)的投稿要求，完成一篇科学论文从初稿写作到完成投稿的一个完整环节的训练。

第二节　学霸如是说

百度百科对学霸[①]的释义是：擅长学习，分数很高的学生，引申为学界中的霸主，指平时刻苦钻研，认真学习，学识丰富，学习成绩斐然的一类人。

施一公[②]教授，中国科学院院士、美国艺术与科学学院院士、美国国家科学院外籍院士，就是一位我心目中的学霸。施教授出生于 1967 年，1984 年保送至清华大学生物科学与技术系，1989 年提前毕业并获得学士学位，1995 年获美国约翰·霍普金斯大学医学院分子生物物理博士学位。表 1-1 是施教授 1995～2015 年期间发表的高水平论文情况。

表 1-1　施一公历年(仅含 5 种顶尖期刊)高水平论文汇总情况

年份	Nature	Science	Cell	PNAS	Nature 子刊	小计
2015	2	2		2		6
2014	2		1	4		7

① https://baike.baidu.com/item/%E5%AD%A6%E9%9C%B8/13135529?fr=aladdin

② https://baike.baidu.com/item/%E6%96%BD%E4%B8%80%E5%85%AC/7612695?fr=aladdin

续表

年份	Nature	Science	Cell	PNAS	Nature 子刊	小计
2013	3					3
2012	2	1				3
2011	1			1	1	3
2010	2	1	1			4
2009	2	1	1	1	1	6
2008	1		1		1	3
2007		1	1	2	2	6
2006			3		1	4
2005	3					3
2004			2		2	4
2003			1		2	3
2002		1	2	1	1	5
2001	2		2		1	5
2000	2	1			1	4
1999	1		1	1		3
1998			1			1
1997	1					1
1996		1				1
1995		1				1
汇总	24	10	17	12	13	76

资料来源：青塔网①

施教授及其团队能够在CNSP上长期不间断的发表科学论文，除了研究领域、创新等原因外，写出精彩的英文科学论文也是成功的一个重要原因。施教授专门写了一篇“如何提高英文的科研写作能力②”的博文。文中，他归纳出以下6点心得：

1. 要写好科研论文，必须先养成读英文文章的习惯，争取每天30～60分钟。

2. 写科研论文，最重要的是逻辑。逻辑的形成来自对实验数据的总体分析。必须先讨论出一套清晰的思路，然后按照思路来做图(Figures)，最后才能执笔。

3. 具体写作时，先按照思路(即Figures)写一个以subheading为主的框架，然后开始具体写作。第一稿，切忌追求每一句话的完美，更不要追求词语的华丽，而主要留心逻辑(logic flow)，注意前后句的逻辑关系、相邻两段的逻辑关系。写作时，全力以赴，尽可能不受外界事情干扰(关闭手机、座机)，争取在最短时间内拿出第一稿。

① https://www.cingta.com/

② https://m.thepaper.cn/baijiahao_11440668

还要注意：一句话不可太长。

4. 学会照葫芦画瓢。学习别人的文章要注意专业领域的不同，有些领域（包括我所在的结构生物学）有它内在的写作规律。科研文章里的一些话是定式，比如“To investigate the mechanism of…, we performed…”, “These results support the former, but not the latter, hypothesis…”,“Despite recent progress, how… remains to be elucidated…”等等。用两次以后，就逐渐学会灵活运用了。在向别人学习时，切忌抄袭。在美国一些机构，连续 7 个英文单词在一起和别人的完全一样，原则上就被认为抄袭（plagiarism）。

5. 第一稿写完后，给自己不要超过一天的休息时间，开始修改第二稿。修改时，还是以逻辑为主，但对每一句话都要推敲一下，对 abstract 和正文中的关键语句要字斟句酌。学会用“Thesaurus”（同义词替换）以避免过多重复。第二稿的修改极为关键，再往后就不会大改了。

6. 第二稿以后的修改，主要注重具体的字句，不会改变整体逻辑了。投稿前，一定要整体读一遍，对个别词句略作改动。记住：学术期刊一般不会因为具体的语法错误拒绝一篇文章，但一定会因为逻辑混乱而拒绝一篇文章。

这套方法行之有效，我对所有的学生和博士后都会如此教导。我的第一个博士后是柴继杰，1999 年加入我在普林斯顿大学的实验室。继杰当时的英文阅读和写作能力很差。我对他的第一个建议就是，“每天花半小时读英文报纸”。难能可贵的是：他坚持下来了！经过几年的努力，2004 年继杰已经能写出不错的 grant proposal，2006 年他的第一篇独立科研论文发表在《Molecular Cell》上，随后相继在《自然》发表两篇、在其它一流学术期刊发表十多篇论文。写作能力开始成熟。

发表论文是一件值得高兴的事情，但要明白：论文只是一个载体，是为了向同行们宣告你的科研发现，是科学领域交流的重要工具。所以，在科研论文写作时，一定要谨记于心的就是：用最简单的话表达最明白的意思，但一定要逻辑严谨！其实，中文和英文论文皆如此！

施教授介绍的方法，针对具有一定科研实力及科学论文写作能力的学生而言，确实行之有效。如果读者能够按照施教授的方法坚持下去，或许本书后续内容也可以不用看了。如果读者认为自己在科学论文写作过程中还有一些迷迷糊糊、不是很清楚的地方，或许本书会提供一些有价值的参考。鼓励大家通读完本书，并且能够找到自己想要的答案。

第三节　考核标准

就读学校院所及专业领域的不同，获得学位的要求也不同。如某高校[①] 2014 年制定的申请学位发表学术论文的规定（有删略）：

1. 人文社科类（含哲学、经济学、法学、教育学、文学、历史学、管理学、艺术学、教育博士等）博士研究生自入学起，在获得博士学位之前，必须在我校文科最优学术刊

① http://www.paperright.com/20171009/1487.html

物或一类核心学术期刊(均不含增刊、专刊、专辑)上发表 1 篇学术论文;或在我校文科二类核心学术刊物上发表 3 篇学术论文。

2. 理学类博士研究生自入学起,在获得博士学位之前,必须发表 1 篇 JCR 二区以上的学术论文;或 2 篇其它 SCI 收录的学术论文。

3. 工学类博士研究生自入学起,在获得博士学位之前,必须发表 1 篇 JCR 二区以上的学术论文;或 2 篇其它 SCI 收录的学术论文;或 1 篇其它 SCI 收录的学术论文和 1 篇 EI 收录的学术论文。

4. 各学位评定分委员会(学位评定工作小组)应以此规定为基本,根据自身学科特点制定不低于此基本的博士研究生申请学位的科研成果要求,经研究生院审核通过后公布实施。

又如,在《关于〈××大学博士研究生申请博士学位的成果考核标准(2018 版)〉的通知》[①]中规定(有删略和调整):

1. 博士学位申请者的学位论文应发表在 SCIE、SSCI、A&HCI、EI、MI、CSSCI(核心版)、CSCD(核心版)、《中文核心期刊要目总览》的"来源期刊"上,但不包括这些学术期刊的增刊、专刊等非正常出版的刊物。对来源期刊以论文发表年为准,对期刊所属 JCR 分区和影响因子的认定原则以发表年为准。

2. 哲学、法学类学科的博士研究生申请博士学位时,须至少在 CSSCI(核心版)源刊上发表学术论文三篇。在 SSCI/A&HCI 源刊上发表学术论文一篇可等效为在 CSSCI(核心版)源刊上发表学术论文二篇。

3. 艺术学类学科的博士研究生申请博士学位时,须满足下列条件之一:(1)在 SSCI/A&HCI 源刊上发表学术论文一篇,且在 CSSCI(核心版)源刊上发表学术论文一篇。(2)在 CSSCI(核心版)源刊上发表学术论文三篇。(3)在 CSSCI(核心版)源刊上发表学术论文二篇,且在《中文核心期刊要目总览》源刊上发表学术论文二篇。

4. 理学、工学类学科(××除外)的博士研究生申请博士学位时,须满足下列条件之一:(1)在 SCIE/SSCI 源刊上发表学术论文二篇,其中在 JCR 分区表中指定相应学科领域 Q1、Q2 区期刊学术论文至少一篇;(2)在 SCIE/SSCI 源刊或 EI/CSCD(核心版)源刊上发表学术论文三篇,其中被 SCIE/SSCI 学术论文至少二篇;(3)在 SCIE/SSCI 源刊上发表被 SCIE/SSCI 收录学术论文二篇,且获授权国家发明专利一件。

5. 生物学学科的博士研究生申请博士学位时,须满足下列条件之一:(1)发表 Nature Index 所属期刊论文或 JCR 分区表中指定相应学科领域 Q1 区期刊论文或期刊影响因子≥5.0 的 SCIE/SSCI 源刊论文一篇。(2)发表 SCIE/SSCI 源刊或中华医学会系列期刊或 Medline 收录期刊或 EI/CSCD(核心版)源刊学术论文三篇,其中被 SCIE/SSCI 收录学术论文(期刊影响因子大于 1.0)至少二篇。(3)在影响因子≥10.0 的期刊上发表学术论文一篇,可供排名前两位且为共同第一作者的博士研究生申请博士学位,但他们的博士学位论文内容不能雷同。

① http://yzb.seu.edu.cn/2018/0903/c6689a237450/page.htm

6. 经济学、管理学类学科的博士研究生申请博士学位时，须在 SCIE/SSCI/A&HCI/CSSCI(核心版)/CSCD(核心版)源刊上发表学术论文三篇，其中至少一篇学术论文被 SCIE/SSCI/ A&HCI 收录或发表在《中国社会科学》《经济研究》《管理科学学报》《管理世界》上。

7. 医学类学科的博士研究生申请博士学位时，须满足下列条件之一：(1)发表 JCR 分区表中指定相应学科领域 Q1 区期刊论文或期刊影响因子≥5.0 的 SCIE/SSCI 源刊论文一篇。(2)发表 SCIE/SSCI 源刊论文二篇，其中至少一篇为 JCR 分区表中指定相应学科领域 Q2 区期刊论文。(3)在 SCIE/SSCI 源刊或中华医学会系列期刊或 Medline 收录期刊或 EI/CSCD(核心版)源刊上发表学术论文三篇，其中被 SCIE/SSCI 收录学术论文至少二篇且期刊累计影响因子≥3.0。(4)在影响因子≥10.0的期刊上发表学术论文一篇，可供排名前两位且为共同第一作者的博士研究生申请博士学位，但他们的博士学位论文内容不能雷同。

8. 各学科学位评定委员会可在此考核标准基础上，提出本学科授予学位的更高要求，并报校学位评定委员会办公室备案。

再如，《××大学拔尖博士生校长奖学金管理办法》[①]指出，校长奖学金由学校设立，用于奖励已取得较突出学术或技术研究成果的博士研究生，鼓励博士生争取原创性研究成果和技术成果，其中申请条件包括(有删减)：

1. 校长奖学金设特等、一等 2 个等级，每年特等人数不超过 5 名、一等人数不超过 30 名。

2. 学习成绩优异，科研能力突出，攻读博士学位期间已取得重要学术价值科研成果，理论或技术上有重大创新。在读博期间，与所学专业相关的学术成果须满足以下基本条件之一：

特等奖：(1)在 Nature、Science、Cell 一流学术期刊发表论文 1 篇及以上；(2)学校认定的人文社会科学类 A1 类期刊发表论文 1 篇及以上；(3)单项专利转让 1000 万以上或 2 个 PCT 国际授权专利。

一等奖学金：(1)人文社会科学类在 SCI、SSCI 或 A&HCI(参照 SSCI 或 SCI 标准认定)一区期刊发表 1 篇及以上，理、工、医类等其它学科在最新中科院 SCI 一区期刊发表 1 篇及以上(NI 指数论文优先)；(2)ESI 前 1‰高被引论文发表 1 篇及以上；(3)单项专利转让 300 万以上或 1 个 PCT 国际授权专利。注：(1)发表论文须大学为第一署名单位，研究生本人为第一作者；(2)发表论文除 Nature 中的 Letter 外，只限 Article；(3)专利需以大学为第一完成单位，研究生本人为第一申请人。

从以上看出，熟练英文科学论文写作、发表高质量英文科学论文，对于研究生尤其是博士生而言，具有重要意义。从科研交流出发，研究生会撰写高质量的科学论文，也是十分重要和必要的。引用耶鲁大学 Stephen Stearns 教授在他著名的非学术论文 *Some Modest Advice for Graduate Students*[②] 中的一个忠告，结束本小节：

① https://xxgk.csu.edu.cn/__local/C/C3/4E/92689F46A015322DCE4734F1EFF_E747A839_275BD.pdf

② https://stearnslab.yale.edu/modest-advice

Start Publishing Early. *Don't kid yourself. You may have gotten into this game out of love for plants and animals, your curiosity about nature, and your drive to know the truth, but you won't be able to get a job and stay in it unless you publish. You need to publish substantial articles in internationally recognized, refereed journals. Without them, you can forget a career in science. This sounds brutal, but there are good reasons for it, and it can be a joyful challenge and fulfillment. Science is shared knowledge. Until the results are effectively communicated, they in effect do not exist. Publishing is part of the job, and until it is done, the work is not complete. You must master the skill of writing clear, concise, well-organized scientific papers.*

第四节　概念解释

本节首次出现了科学论文研读和写作过程中常见的一些术语，考虑到有些同学可能还不是很清楚，因此特做简要介绍：

1. SCI/SCIE：科学引文索引(Science Citation Index)主要收录世界自然科学、工程技术领域最具影响力的重要期刊。SCIE(SCI Expanded)是SCI扩展版。

2. SSCI：社会科学引文索引(Social Sciences Citation Index)为SCI姊妹篇，主要收录包括人类学、法律、经济、历史、地理、心理学等领域的世界最重要的社会科学期刊。

3. A&HCI：艺术和人文引文索引(Arts & Humanities Citation Index)主要收录考古学、建筑学、艺术、文学、哲学、宗教、历史等社会科学领域重要的期刊和文摘。

4. EI：工程索引(Engineering Index)主要收录工程技术方面的各个领域，但属于纯理论方面的基础学科文献一般不予报导。

5. JCR：期刊引用报告(Journal Citation Reports)每年出版并公布SCIE期刊的分区和影响因子等指数。

6. IF：影响因子(Impact Factor)是一个国际通用期刊评价指标，也是测度期刊学术水平乃至论文质量的重要指标。

7. 期刊分区：中国科学院文献情报中心根据JCR数据对SCI期刊进行的分区，包括大类和小类分区。大类分区是将期刊按照数学、物理、化学、地学、天文、生物学、农林科学、医学、工程技术、环境科学与生态学、管理科学、社会科学等13个学科进行分区，大类分区包括Top期刊；小类分区是将期刊按照JCR已有学科分类体系所做的分区。

8. Top期刊：期刊分区中，被认为是该学科中高学术影响力的期刊。

9. 前5%(10%)期刊：期刊分区中，把每一个学科的期刊集合按照3年平均IF降序排列，取其总数量的5%(10%)即得到前5%(10%)期刊。

10. CSCD：中国科学引文数据库(Chinese Science Citation Database)用于收录中国数学、物理、化学、天文学、地学、生物学、农林科学、医药卫生、工程技术和环境科学等领域的中英文科技核心期刊。

11. CSSCI：中文社会科学引文索引(Chinese Social Science Citation Index)用于收录包括法学、管理学、经济学、历史学、政治学等中文社会科学领域的学术期刊。

12. 中文核心期刊要目总览：参考工具书，主要是从中国出版的中文期刊中评选出不同学科的核心期刊、专业期刊等。

第五节　思考与练习

一、课后思考

1. 无论是面临毕业压力还是奠定学术生涯基础，在学术期刊尤其是国际高质量期刊上发表科学论文，都是博士研究生教育过程中的必修环节。越早意识到这一点，越早开始做准备，越容易早日出成果，距离个人目标就越近。当然，对于立志读博的硕士研究生而言，越早掌握英文科学论文写作技能，就越有可能在硕士期间发表高质量期刊论文，攻读博士研究生的机会也越大，以后获得博士学位就越容易。

2. 不积跬步，无以至千里；不积小流，无以成江海。设定目标制定相应的学习工作计划，对研究生而言，很重要。只有在设定目标和分期分阶段计划的督促下，紧张的学习工作和生活才会有条不紊，才不会顾此失彼。不妨给自己设定一个目标，比如通过半年时间的学习和坚持练习，实现“完成初稿，并且投递成功给目标期刊”的目标。迈出英文科学论文写作的第一步，以后迈出的无数步就不再会像迈出的第一步那么困难了。其实，英文科学论文写作训练，对于实现转型、正视自己、充分挖掘潜力、提升自我有着积极的帮助作用，对于面对一生中需要面对最大的挑战，即超越自我，也很有帮助。

二、课后练习

耶鲁大学 Stephen 教授[①]说过：

Always Prepare for the Worst. *Some of the greatest catastrophes in graduate education could have been avoided by a little intelligent foresight. Be cynical. Assume that your proposed research might not work, and that one of your faculty advisers might become un-supportive or even hostile. Plan for alternatives.*

Nobody Cares About You. *In fact, some professor care about you and some don't. Most probably do, but all are busy, which means in practice they cannot care about you because they don't have the time. You are on your own, and you had better get used to it. This has a lot of implications. Here are two important ones:*

(1) You had better decide early on that you are in charge of your program. The degree you get is yours to create. Your major professor can advise you and protect you to a certain extent from bureaucratic and financial demons, but he should not tell you what to do. That is up to you. If you need advice, ask for it: that's his job.

(2) If you want to pick somebody's brain you'll have to go to him or her, because they won't be coming to you.

① https://stearnslab.yale.edu/modest-advice

You Must Know Why Your Work is Important. *It is also important to the dynamic of science that your entry be well thought out. This is one point where you can start a new area of research. Remember, what sense does it make to start gathering data if you don't know-and I mean really know-why you're doing it?*

本讲结束后，建议完成以下练习，作为本课程的准备工作：

1. 作为初入门的硕博士研究生，建议入学伊始，便与导师至少充分交流一次，明确自己未来几年期间的研究方向和具体研究内容。多数情况下，导师都有在研课题和研究团队，对于你的研究主题(research topic)也是早有安排的。这时的你，越尽早越主动地知道未来的工作目标越好。只有明确了你的研究主题，你才会更加容易地融入到所在的团队，在自己未来计划安排上，才会做到更具有针对性、有目的、有意义。

2. 如果导师还没有安排你的研究计划，那么，你更需要主动。你应该在了解到导师近期关注的具体领域和基本想法后，通过准备，与导师进行第二次充分交流，谈谈你的认知和想法，听听导师的意见和建议。尽快与导师商讨出一个研究主题，哪怕是工作主题(working topic)也好。聊胜于无！

切记 Stephen 教授的忠告，如果你选择的主题，导师不认同，最好更换。不要赌气的认为自己很能干，一定可以做出来一些成绩给导师看。如果真的可以做出来自己想做的事情，建议也最好是在把导师安排的事情做完做好的前提下再去做。