第二讲　收集文献

论文类型不同、写作的目的和意义不同、需要检索的文献来源不同，所采用的检索方法就会有所差异。

科学论文和科研课题申请书的撰写，需要收集文献，大致包括经典文献、最新进展和相关文献等。也可划分为：

1. 期刊：如核心期刊、Top 期刊、本领域前 5%期刊、1 区、2 区期刊等；

2. 研究机构：如某研究所、某大学等；

3. 研究人员：如某高产作者、某高被引学者、某学者及其实验室或团队成员等；

检索时，一定要清楚写作论文的类型、目的和意义，采用有针对性的检索。

第一节　论文类型及写作目的

论文类型的划分方法不完全一致。以 Elsevier 期刊为例，例如 *Ecosystem Services*[①] 在 Author Information Pack 中给出了可发表的 6 种类型论文的定义：

1. ***Original Research Articles***. *Research papers report the results of original research, including policy assessments. The material must not have been previously published elsewhere. Original research articles are usually up to 8,000 words.*

2. ***Short Communications***. *Short Communications report the results of preliminary studies, partial research results from an ongoing study, results from studies limited in scope, or raise a critical issue or question based on such results. Short communications should follow all the basic requirements of full paper manuscripts, but must not exceed 3,000 words.*

3. ***Review Articles***. *Reviews (including policy reviews) should address topics or issues of current interest. They may be submitted or invited. Review articles are usually up to 12,000 words and must include a Methods section explaining how the literature for review was selected.*

4. ***Views and Commentaries***. *Commentaries are short pieces commenting on topics of interest to the wide readership or present a novel, distinctive, or even personal viewpoint on any subject within the journal's scope. The article should be adequately supported by citations but may focus on a stimulating and thought-provoking line of argument that represents a significant advance in thinking about Ecosystem Services. They can be submitted after discussion with the Editor-in-*

① AUTHOR INFORMATION PACK 11 Apr 2017, www.elsevier.com/locate/ecoser

Chief. Maximum 1,000 *words.*

5. ***Letters to the Editor.*** *Letters to the editor are written in response to a recent article appearing in the journal. Letters should be less than* 800 *words, with references kept to a minimum (three or fewer references). Authors will also be given an opportunity to respond.*

6. ***Special Issue Articles.*** *The journal is open to Special Issues. Please contact the Editor-in-Chief if you would like to submit a proposal. Special Issue papers should not exceed* 8,000 *words.*

再如 *Landscape and Urban Planning*[①] 首先指出可接收论文的一般要求：

Landscape and Urban Planning publishes original, empirical research on important international and regional issues in landscape science, with an emphasis on applied work that provides solutions for landscape design. Most manuscript submissions take the form of full-length Research Papers. Shorter Research Notes are also encouraged as described below. To facilitate the discourse of landscape science and design, alimited number of articles of other types will also be considered for peer review upon approval by one of the Co-Editors-in-Chief prior to submission.

随后给出了 8 种类型论文的定义：

1. ***Research Papers.*** *Given the problem-driven nature of landscape science and the journal's commitment to linking research and practice, most Research Paper submissions will fall within the area of applied research. Purely conceptual or theoretical work will be considered on a limited basis under the Perspective Essay article type (see below). Otherwise, Research Papers focused on modeling and other "basic" research efforts should include at least a small sample of data to demonstrate proof-of-concept. Whether basic or applied, all Research Papers should describe the relevance of the work and its implications for landscape and urban planning, design, management and/or policy. Research Papers are typically between* 4,000 *and* 8,000 *words, including manuscript text and references (use* 25-60 *references as a guideline). Some exceptions to the upper length limit may be allowed for reports of large-scale interdisciplinary and transdisciplinary projects or for qualitative research where in-text quotations provide evidence in lieu of tables and figures. An abstract (*250 *words or less), keywords (*3-6*), and research highlights (*3-5*) are also required. Tables and figures should be used with economy to convey essential aspects about study concepts and findings. One or two contextual photos may be optionally included as figures to convey to readers the essential nature of the landscape and issues examined in the article. Other in-*

① AUTHOR INFORMATION PACK 10 Apr 2017, www. elsevier. com/locate/landurbplan

formative materials may also be optionally submitted, including Appendices, Acknowledgments, short Author Biographies, Graphical Abstracts, Google Maps (KML files), Embedded Audio and Video files, and Supplementary Material for online-only publication.

2. ***Research Notes.*** *A Research Note is a concise but complete description of a limited investigation that will not be included in a later paper. It provides one of the following functions: (1) presenting initial proof-of-concept results on new ideas, timely issues, or innovative approaches; (2) reporting replications or extensions of previously published research that does not merit another full-length treatment yet provides results that contribute to a greater understanding of the phenomena under study. Research Notes should typically be limited to 2,000 words and a total of 3 tables and figures, yet be sufficiently documented, both by reference to the essential literature and description of methods employed, for readers to be able to assess the scholarly rigor of the research. A Research Note should include a brief (150 words or less) abstract, keywords (3-6), and research highlights (3-5). The title of the submission should be prefaced with the words "Research Note."*

3. ***Review Articles.*** *Review Articles examine a coherent and comprehensive set of published research studies or other works (e.g., policies, reports, case studies) covering a subject area of current or emerging interest. They can take one of two forms: (1) Narrative Reviews identify, synthesize, and/or offer critical assessments of the state-of-the-art in knowledge about a subject, highlighting important concepts, variables, and theories under study, problems and knowledge gaps yet to be addressed, and guidance for future research. (2) Analytical Reviews involve systematic assessments of the literature, often using bibliographic database search and retrieval systems such as Scopus or Web of Science, alone or in combination with full-text searching, mining, and analysis software. These include Systematic Reviews and meta-analyses that follow a standardized format aimed at building a base of knowledge for evidence-based design (e.g., http://www.environmentalevidence.org/EBConservation.htm). They also include quantitative, bibliometric techniques such as citation analysis and qualitative analyses of content themes aimed at identifying the structure of and trends in knowledge about an area of inquiry. Review Articles are typically between 6,000 and 10,000 words in length, including references and tables. Please include an abstract (250 words or less), keywords (3-6), and research highlights (3-5), and follow APA 6th Edition guidelines for referencing documents included in your analysis. Review Articles may be invited or offered but must be approved by one of the Co-Editors-in-Chief prior to submission. Those considering submitting a Review Article to the journal are encouraged to send a prospectus or attach a cover letter with their sub-*

mission outlining the topic and scope of coverage; originality and need for the review; number, type (i.e., peer-reviewed journals vs. other document types), and international range of citations included; and a brief assessment of previously published reviews related to the topic.

4. ***Perspective Essays.*** *Perspective Essays present new ideas or frameworks; challenge current thinking, policies, or approaches; or otherwise offer thoughtful reflections aimed at improving our understanding of the interactions between people and natural and built environments and their implications for landscape planning, design, management, and policy. Perspective Essays should be grounded in the existing literature and adequately referenced but with an emphasis on original thought rather than an exhaustive accounting of the ideas of others. Perspective Essays may range from 2,000 to 8,000 words in length with a limited number of tables and figures. Except for short essays, submissions should be structured with section headings that convey to readers key themes and a logical flow of ideas. An abstract (250 words or less), keywords (3-6), and highlights (3-5) are required. Perspective Essays may be invited or proposed but must be approved by one of the Co-Editors-in-Chief prior to submission.*

5. ***Comments and Rejoinders.*** *A Comment is a critical or explanatory note on an article published in Landscape and Urban Planning. It may be invited or proposed but must be approved by one of the Co-Editors-in-Chief prior to submission. Comments should typically be of 2000 words or less with a limited number of references. Please include a short abstract (150 words or less), 3-5 highlights, and 3-6 keywords. The title of the submission should be prefaced with the words: "Comment on", followed by the title of the previously published article and the authors' names. Should one or more Comments be accepted for publication, the handling editor may invite the author(s) of the previously published article to write a Rejoinder, which may be published along with the Comments.*

6. ***Editorials.*** *The Co-Editors-in-Chief, Associate Editors, Editorial Board members, and invited guests may occasionally provide brief commentaries on significant issues of relevance to the journal's aims and scope, introductory essays to special issues, as well as news and information relevant to the journal and its readers.*

7. ***Book Reviews.*** *The editorial team is not accepting books for review at this time. Please consult the online Guide for Authors for future updates.*

8. ***Special Issues.*** *A Special Issue (SI) in Landscape and Urban Planning is a coherent collection of 10-15 papers on a specific theme of research and scholarship that falls within the aims and scope of the journal and has a broad international appeal. Research Papers form the core of a Special Issue, but SIs are also given breadth and depth by an introductory Editorial and other article types which may*

include a Perspective Essay, Review Article, Research Notes, and Comments. SIs are proposed and orchestrated by a guest editor under the guidance of a member of the journal's editorial team, and are selected for development through a competitive process of proposal submission and evaluation. The journal's editors welcome innovative proposals of high quality and relevance from prospective individuals or teams, and may publish up to four SIs per year. Proposals are due July 1st of each year with selections announced in October. Information and proposal guidelines are available on the journal's web page: http://www.journals.elsevier.com/landscape-and-urban-planning/policies/

又如 *Biological Conservation*[①] 给出了接收发表的 9 种类型论文的定义：

1. ***Full Length Articles*** (***Research Papers***). *Research papers report the results of original research. The material must not have been previously published elsewhere. Full length articles are usually up to 8,000 words.*

2. ***Review Articles***. *Reviews should address topics or issues of current interest. They may be submitted or invited. Review articles are usually up to 12,000 words and must include a Methods section explaining how the literature for review was selected.*

3. ***Systematic Reviews***. *A systematic review applies a methodology to collect together and appraise the scientific evidence on a specific question or hypothesis. Its main strengths are the transparent approach to minimizing bias in considering importance of data. For a more elaborate explanation of systematic reviews, please check the following link: http://www.environmentalevidence.org/Authors.html.*

Systematic reviews should not exceed 8,000 words. Although the manuscript should report the main outcomes of the systematic review, it is expected that the full review and associated data will be made available online.

4. ***Perspectives***. *These articles provide an opportunity for authors to present a novel, distinctive, or even personal viewpoint on any subject within the journal's scope. The article should be well grounded in evidence and adequately supported by citations but may focus on a stimulating and thought-provoking line of argument that represents a significant advance in thinking about conservation problems and solutions. Perspectives articles should not exceed 8,000 words.*

5. ***Short Communications***. *Short communications are meant to highlight important research that is novel or represents highly significant preliminary findings, and should be less than 4,000 words.*

6. ***Book Reviews***. *Book reviews will be included in the journal on a range of relevant titles that are not more than two years old. These are usually less than 2,000 words. Please submit your requests/ideas to Philip Cafaro at philip.cafaro*

① AUTHOR INFORMATION PACK 28 May, 2016 www.elsevier.com/locate/biocon

@colostate.edu.

7. ***Letters to the Editor***. *Letters to the editor are written in response to a recent article appearing in the journal. Letters should be less than 800 words, with references kept to a minimum (three or fewer references).*

8. ***Special Issue Papers***. *Biological Conservation accepts special issue proposals. Please complete the special issue proposal form and send it to the Editor-in-Chief Richard Primack at primack@bu.edu*

9. ***Reviewer Commentary***. *A Reviewer Commentary is an elaboration on a review report, written by a referee upon invitation by the Editor only. It expresses an interesting or useful view on the article that the referee reviewed. A reviewer commentary contains a maximum of 1,500 words and 6 references.*

通过以上阅读并比较，可以得出：

1. 不同期刊在接收投稿论文的要求上不尽相同，甚至有可能会出现较大差异的情况。作为初学者，一定要在选定目标期刊以后，认真阅读 Author Information Pack/Author Guideline，避免不必要的浪费时间。

2. 除 Original Research Articles 和 Short Notes 外，其余类型论文很多情况下都需要与主编联系，确认是否接收后才适宜投稿。

3. Review Articles 多由主编邀请专家撰写，撰写人在论文中需要明确给出具体的参考文献收集方法。

4. 从论文构成或主要内容看，Short Notes 与 Research Articles 在写作要求上没有特别显著性差异；但前者要求的长度即字数，与后者相比，较短。

现实中，研究生发表的科学论文多属于原创性研究论文（Original Research Articles）。偶尔会协助导师合作写一些其它如文献综述、会议述评等不同类型的论文。因此我们将重点介绍原创性研究论文所需要掌握的文献收集方法。

第二节　检索工具及方法

一、检索工具

收集文献完成课后作业，是大学生本科阶段在校学习的一个必修环节。很多人认为收集文献是一件很简单的事情。但是事实并非如此。

首先看两个事例。一个是，具有一定代表性的魏则西[①]事件（2014～2016）。有观点认为“莆田系是凶手，Baidu 推广是帮凶[②]”。这件事与收集文献有什么关系呢？它充分反映了“信息收集渠道的选择问题”。另一个是，有新闻报道（北京时间 2018 年 12 月 12 日）[③]：美国众议院司法委员会听证会上，谷歌（Google）首席执行官桑达尔·皮查伊（Sundar Pichai）被要求解

① https://baike.baidu.com/item/%E9%AD%8F%E5%88%99%E8%A5%BF/19645341?fr=aladdin

② https://zhidao.baidu.com/question/307987015918435084.html

③ https://baijiahao.baidu.com/s?id=1619635460835277584&wfr=spider&for=pc

释为什么谷歌搜索“idiot”的图片时会出现唐纳德·特朗普(Donald Trump)总统的照片,以及这是否属于故意偏见。桑达尔表示,搜索引擎是通过关键词与200多个因素匹配而成,算法是客观的。这件事又与收集文献有什么关系呢?它充分反映了“信息获取的方法问题”。以上两个事例说明,采用哪种检索工具以及如何检索,对于获得的检索结果,具有影响。

发表的科学论文中,引用文献的数量能够反映出作者的阅读量;文献的质量可以反映出作者的科研水平和能力;文献的权威性和期刊档次的高低,也与论文质量的高低紧密相关,可以说,参考文献的意义十分重要。一般而言,科学论文要尽量引用专业期刊文献、高质量期刊文献;要尽量引用专著和原创性研究论文,避免或尽少引用各类学位论文、非学术性期刊论文以及非专业性期刊论文等。

如何检索专业的、高等级、高质量参考文献呢?这就涉及检索方法了。科学论文收集文献使用的检索工具及方法,大致包括[①]:

1. 文献数据库。各高校或研究机构图书馆数据库列表中经常使用的包括Elsevier、Springer、Science Direct、Wiley-Interscience以及Science、Nature等开源(open access, OA)期刊网站。

2. 搜索引擎。经常使用的包括Google Scholar、Scopus、Web of Science等。

3. 文献引文。指利用已有文献标注的参考文献为线索,找到相关文献。这种方法主要是针对比较重要的文献,如开创性文献、权威性文献、重要综述等被引次数较多的文献。初学者可以从文献的参考文献中按图索骥寻找到全文。

获取文献全文(full text)的方法很多。开源期刊论文在期刊网站上可以直接下载获取。对于无法下载全文的期刊,最简单便捷的方法就是通过电子邮件或科研社交网站平台(如ResearchGate等)联系论文的(第一或通讯)作者直接索取。需要注意的是,采用科研社交平台索取时,有时需要注册为用户以后才能使用平台工具。

一般来说,国内高校或研究院所并不会同时购买下所有的数据库。初学者在不是很熟悉上述检索工具或方法时,建议逐一尝试一下。当检索工具和方法熟悉以后,才适宜依据数据库平台以及研究领域而相对固定下来。此外,由于数据库购买的数据也不统一,基于重要文献不遗漏的原则,采用多种检索文献交叉的方法,也值得初学者关注。

二、应用举例

考虑到具体的检索方法很多,下面选择一些较有代表性的案例,展示如何有效利用检索工具实现文献收集的目的,供初学者了解。需要强调的是,只有通过实际操作,才能在过程中逐步达到熟练应用的程度。

(一)2014年土地科学研究重点进展评述及2015年展望[②]

1. 检索工具:中国知网(CNKI)、万方(WANGFANG Data)、维普(VIP)、Elsevier、Springer、ProQuest等电子数据库。

2. 检索方法:文献调研法(围绕研究项目及课题的需要而有目的有计划地查阅文献情报资料的一种科学研究方法)。

3. 研究目的:分析2014年国内外土地科学研究重点问题、展望2015年中国土

① 刘进平,2018,英语阅读理解、科技英语翻译和SCI论文写作技巧.北京:中国林业出版社.第1版.p165-6.

② 冯广京等,2014年土地科学研究重点进展评述及2015年展望.中国土地科学.2015,29(1):4-19+70.

地科学发展趋势及《中国土地科学》重点关注方向。

4. 检索结果：194 篇重要文献，其中英文文献 56 篇、中文文献 138 篇，主要分布在《中国土地科学》、《农业工程学报》、《农业经济问题》、《中国人口·资源与环境》、《资源科学》、《经济地理》、Land Use Policy、Applied Geography、Journal of Development Economics、Landscape and Urban Planning 等期刊。

5. 对检索结果的简要分析：138 篇中文文献中 99 篇标注有国家或省部级科学基金、科技计划资助，总资助项数 161 项。涉及土地利用变化机制与效应、土地利用管控等重点问题的研究全部受到了资助。土地科学受到地理学、管理学、经济学、法学等多个相关学科的支持，其中地理学重点关注了土地利用与规划、农用地保护等多个领域的研究，管理学、法学重点关注了土地制度与土地市场，经济学重点关注了土地市场。

点评：检索方法及研究目的明确，但是可重复操作性较差。比如，“重点问题”、“发展趋势”、“关注方向”是如何被检索出来的？又是如何对其予以确认的？标准是什么？上述中英文期刊是如何被遴选出来的？依据是什么？重要文献是如何在检索结果中被遴选出来的？等问题，论文都没有交代清楚。

尽管存在以上问题，初学者依然可以了解到并能够掌握的技巧和方法包括：(1)熟悉并熟练操作文献中提及的几种常见检索工具。(2)了解在不确定主题情景下，交叉使用不同工具检索文献，避免重要文献出现遗漏。(3)了解到相同主题的文献，可以出现在不同学科期刊上；不同学科期刊上，也可以出现相同主题的研究论文；并且初步了解到出现以上情景的主要原因是什么。(4)除论文研究内容外，文献标注出的受资助情况也具有一定参考价值。

(二)从城乡一体化到城乡融合：新型城乡关系的思考[①]

1. 检索工具：从样本全面性、权威性及代表性需求出发(选择检索工具的理由)，选择中国知网。

2. 检索范围：选择 SCI/EI/CSSCI/CSCD 来源期刊为基础数据源；时间为 1998 年至 2018 年 8 月 25 日。

3. 检索方法：高级检索方法。考虑到中国在不同时期对城乡关系的称谓不统一，选择“关键词”=“城乡关系”or“城乡关联”or“城乡联系”or“城乡互动”or“城乡统筹”or“城乡一体化”or“城乡融合”进行精确检索，得到参考文献。

4. 结果处理：为保证检索文献的相关性，对检索结果进行逐一筛选，删除会议征稿、卷首语、成果介绍、书评等条目以及不相关条目，最终得到 2612 篇文献作为分析的基础数据。

点评：文中检索方法具有较强的可重复操作性，但是中文关键词如何在 SCI/EI 来源期刊中完成的检索，交代不够清楚。初学者了解并可以掌握的方法和技巧包括：(1)借助不同的关键词(模糊/精确)检索方法，收集相同主题文献。(2)检索文献时，可以限定来源期刊范围。(3)再次强调，很多期刊对投稿论文参考文献来源会进行审查，通常要求使用主流期刊来源文

① 刘春芳等．从城乡一体化到城乡融合：新型城乡关系的思考．地理科学，2018，38(10)：1624-1633. doi：10.13249/j.cnki.sgs.2018.10.006

献。例如本例中强调的“选择 SCI/EI/CSSCI/CSCD 来源期刊为基础数据源”。

（三）*Different nation, different ecology: Comparison of ecological research features in China and the US during the recent three decades*[①]

1. 检索工具：*We used SCOPUS (https://www.scopus.com) to download information from ESA journals and used Web of Science (www.isiknowledge.com) and Wiley Online Library (https://esajournals.onlinelibrary.wiley.com/) to complete data coverage when information was missing from SCOPUS. For ESC journals, we used VIP (http://www.cqvip.com/) which covers all of the target journals' information since their first publications.*

2. 检索范围：*Shared the mission to publish and make broadly available the most significant results of ecological research, publications of ESA could well represent the development of ecology in the US. Among various publications, the peer-reviewed journals (including Ecology, Ecological Applications, Ecological Monographs, Frontiers in Ecology and the Environment and Ecosphere) of ESA are all high-level professional academic journal of ecology, they have great influence on the ecological communities at the US and abroad.*

Local peer-reviewed journals reviewed by ESC include Acta Ecological Sinica, Chinese Journal of Ecology and Chinese Journal of Applied Ecology. Acta Ecological Sinica now has an English-language international version published by Elsevier, but the local version is still running as before. All these three journals adopted papers written in Chinese, which could well reflect the national ecological development of China. In 2017, these journals made the top 3 most cited journals of ecology according to Chinese S&T Journal Citation Reports (ISTIC 2018). They have great impacts in ecological communities in China, which make good source to explore the research features of Chinese ecologists.

For both ESA and ESC journals, published year, journal name and author keywords were selected as features of interests within a time span of three decades, from 1988 to 2017.

3. 检索结果：*The final text corpus includes 15,706 articles from ESA journals and 28,756 articles from ESC journals.*

点评：该文研究目的聚焦、文献收集步骤清晰，可重复操作性强。初学者了解并应掌握的方法和技巧包括：(1)一种检索文献限定来源期刊范围的方法。读者可以通过阅读和不断积累，逐步丰富限定条件下文献检索的方法，如高质量来源期刊、leading professors' research group 或 world famous labs 等的研究进展。(2)以上三个案例都是对某一领域研究的重点、方向、趋势等进行比较分析的综述类文献。例 1 检索的文献数量较少，作者通过全文研读，采用

① Huang T. Y., et al., 2018. Different nation, different ecology: Comparison of ecological research features in China and the US during the recent three decades. Global Ecology and Conservation 16 (2018) e00509, https://doi.org/10.1016/j.gecco.2018.e00509

定性分析的方法，完成了写作；例 2 和例 3 检索的文献数量庞大，作者是采用软件、指数、矩阵等方法对关键词进行了定量分析，并绘制出可视化图像，从而完成了相关的分析。

（四）100 *articles every ecologist should read*[①]

1. 研究目标：*Our aim was to collect a list of objectively chosen and ranked seminal papers deemed to be of major importance in ecology, thus providing a general 'must-read' list for any ecologist, regardless of particular topic or expertise. We defined a paper as one that should be read because it provides information that is particularly relevant for today's ecologists. These can include well-known classics, lesser-known methodological gems, general demonstrations of fundamental principles or philosophical essays on ecological science.*

2. 研究方法：*Our approach was to solicit a candidate list from ecology experts (journal editorial members) and then rank those papers according to a random-sample voting process done by an even larger sample of ecological experts.*

To generate a list of 'must-read' papers, we faced two major challenges. (a) How does one define whether a published article is 'important'? (b) How can we compare such articles objectively? The importance of scientific articles is difficult to assess and requires experience and knowledge; it is also a subjective definition by nature and requires refraining from biasing choices towards one's own, necessarily restricted field of expertise, despite familiarity being a necessary precursor to selection. For these reasons, we decided to rely on the expertise of acknowledged experts in ecology and asked them directly, as a community, which scientific articles they deemed most 'important' in the context described above. We thus contacted the editorial members of some of the most renowned journals in general ecology (those with highest impact factors and avoiding journals that are either specialized or multidisciplinary). We contacted all the editorial members of the following journals: Trends in Ecology and Evolution, Ecology Letters, Ecology, Oikos, The American Naturalist, Ecology and Evolution and Ecography. We also contacted all the members of the faculty of 1000 Ecology section (f1000.com/prime/thefaculty/ecol). The common point of all these scientists is that they have normally been selected as editors for their wide knowledge of ecology and their ability to assess the novelty, importance and potential disciplinary impact of submitted ecology research papers; by virtue of their appointment to such editorial boards, these people are ipso facto ecology 'experts'.

We conducted all 665 of these editors by email to describe the project and ask them first to send us the details of three to five peer-reviewed papers (or more if

① Franck Courchamp and Corey J. A. Bradshaw. 2017. 100 articles every ecologist should read. Nature Ecology & Evolution. https://doi.org/10.1038/s41559-017-0370-9。注：因存在争议，该文最后被撤稿了，读者现在已经无法看到原文，但是作者提供的检索方法不存在争议，依然可供参考借鉴学习。

they wished). This selection was based on the criterion that these scientists "deemed each postgraduate student in ecology-regardless of their particular topic-should read by the time they finish their dissertation", and that "any ecologist should also probably read". We also specified that these could include "any type of research paper", and that they need not be strictly 'ecological' if still deemed essential to a general knowledge in ecology.

Collectively, the editorial members (147 respondents of the 665 contacted) nominated 544 different articles to include in primary list (that is, 3.70 articles on average suggested by each person who replied). Once we obtained the list of nominated articles, we asked these same 665 experts to vote on each of them to obtain a ranking provided collegially by the community. As there were so many papers to assess and score, participants could not reasonably be requested to examine all 544 proposed articles and suggest a relative rank of each. This trade-off necessitated a re-sampling approach to tally the relative rank of each article. Therefore, we provided voter with a randomly generated sample of 20 papers from all the nominated papers in the original list. We asked surveyed scientists to vote on the papers provided in at least one randomly generated sample of 20 papers and preferably on five or more randomly generated samples of 20 papers. Participantscould vote on as many papers as they wanted in each sample. In the randomly generated samples, each paper was presented with its full reference, an abstract (available by hovering the curser over the entry) and a downloaded PDF of the full article. The Ethics Committee of the Centre National de la RechercheScientifique agreed that no ethics approval was deemed necessary for such a voluntary and anonymous survey.

We requested that the voter first provide for each of the 20 papers an 'importance' score, assigning each to one of four categories: Top 10, Between 11-25, Between 26-100 or Not in the top "100". We also instructed respondents to provide information on how well they knew each paper via the responses "Read it", "Know it" or "Don't know it". For each voter, we also asked her or his gender, country of education and scientific experience (<10 years, between 10 and 25 years or > 25 years). We gave one point for each selection of the Top 10 category, two points for Between 11-25, three points for Between 26-100 and four points for Not in the Top "100".

We also classified each of the 544 proposed papers into one of six types (review, case study, methodology, concept, career or opinion), one 17 fields (general ecology, biodiversity distribution, community ecology, conservation biology, functional ecology, evolutionary ecology, population ecology, palaeoecology, molecular ecology/microbiology/genetics, behavioral ecology, chemical ecology, ecophysiology, landscape/spatial ecology, soil ecology, aquatic ecology, plant e-

cology, or macroecology/biogeography) and one of six approaches (laboratory experiment, field experiment, modelling, argumentation, data analysis or observation). Of course, some papers could belong to several types, fields or approaches, so we allow repeat categories.

点评：文中对检索及遴选方法阐述的十分清楚，可以重复操作，具有很强的借鉴学习意义。初学者应意识到具备坚实工作基本功的重要性，尤其在面对浮躁时，需要心平气静。

（五）文献检索会带来“福利”

理文编辑（Edanz Group China）[①]给出了一个具体案例。有一个虚拟论文题目为 Region-specific neuronal degeneration after okadaic acid administration，然后设定研究内容是：假定小鼠摄入一种毒素 okadoic（OA），之后会出现神经元退化；同时，激酶依赖途径也参与了神经退行性疾病。案例指出，如果神经细胞变化与功能丧失之间在功能上不存在关联，该研究会被视为停留在初步阶段，很难获得发表机会。但是，如果作为行为学研究，且结果显示小鼠摄入毒素后，产生了学习和记忆障碍，即拥有了组织学、生化和行为学数据，就极有可能获得发表机会。因此需要通过相关文献检索，检验预判假说。

案例中，采用关键词检索 Pubmed 数据库的方法，检索相关研究成果。因为考虑到此题目是虚构的，因此认为极有可能仅找到数篇文献，甚至是根本就没有。但是，检索结果却为作者提供了与此题目紧密相关的几个潜在期刊（potential jornals for submission），如 *Journal of Neuroscience*，*European Journal of Neuroscience*，*Neuroscience*，*Biochemical and Biophysical Research Communications*，*Neurobiology of Learning and Memory*，*Neuropharmacology* 和 *Journal of the Neurological Sciences*。

通过对潜在期刊投稿要求（关注侧重点）与设定题目重点内容进行简要对照以后，或许可以得到以下信息或启发：

（1）*Journal of Neuroscience* 和 *European Journal of Neuroscience* 可能要求更多数据，比如显示与某人类疾症的相关性和/或细胞死亡相关机制的详尽分析。

（2）*Journal of the Neurological Sciences* 更关注临床，所以只有当 OA 处理已知是某个疾病的良好模型时，才可考虑投到这个期刊。但是如果该研究确实显示存在这种关联，该期刊依然是一个很好的目标期刊。

（3）*Biochemical and Biophysical Research Communications* 的范围较广，发表各种生物领域研究的论文；神经生物学属于其兴趣领域，且该期刊表明它致力于迅速传播成果。对于希望尽快从编辑部获得回应或希望尽快发表论文的作者，这可能是一个很好的目标期刊。

（4）如果行为学数据较为新颖，*Neurobiology of Learning and Memory* 也可以是一个很好的目标期刊；该刊也很适合需要尽快发表的作者。

（5）若结果中揭示“神经系统是如何运作的”等方面的内容，*Neuroscience* 将会是一个很好的目标期刊。

（6）作者可以根据终稿（manuscript）的侧重点（如临床 vs 神经生物学 vs 行为学）和作者需求（影响因子的高低、出版时间周期的长短等），对上述候选期刊按需进行合理排序。

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① http://www.liwenbianji.cn

点评：有效的文献检索方法，不仅为读者提供了希望获取的预期文献，同时还为初学者提供了投稿的潜在目标期刊。以上案例和常用检索方法看似容易，但要做到熟练掌握，初学者还需要在学习过程中，多模仿练习、多对比思考、多经验积累。毕竟熟能生巧。

除了关注检索文献内容以外，初学者还应该对期刊多一些了解。比如 Author Guideline、投稿须知、审稿周期、关注重点、录稿偏好等。如果能够及时掌握以上信息，对于提高科学论文的录用几率、缩短发表周期会有很大的帮助。

作为一名初学者，接触不同的科学研究方法，向资深科学家汲取思想，不断淀积，很重要。对已有明确目标的研究生而言，有新的想法是一件好事。但需要了解前人所做过的工作。通过大量的、历史的文献阅读，是避开前人所做的各种试验或方法或已有思考模式的最有效途径。加州大学旧金山分校（University of California, San Francisco，UCSF）Ron Vale 教授[①]在 *How lucky can one be? A perspective from a young scientist at the right place at the right time*[②] 一文中，是这样鼓励初学者的（有删略）：

> *This essay is aimed at young scientists who are starting their own journeys. I will provide a perspective and ten lessons learned from my own experiences in graduate school and travels to the discovery of kinesin. Here is my top-ten list of what I learned from this experience, most which only became obvious in retrospect.*
>
> 1. *As a young scientist, you need to be exposed to different ways of doing science, absorbing the ideas and attitudes of more senior scientists. The net result is a maturation of a hybrid style that best suits you and is a composite of the characteristics that you admire in different individuals.*
>
> 2. *Pragmatics dictate getting results in a defined time period in order to obtain a degree, job or grand. As a result, most of us are not always working on grand issues in biology all of the time. However, you should be vigilant and thoughtful, looking for a wedge or an opening to tackle an important problem, even if it is not your area of research or expertise. If the opportunity comes along, seize it. In most cases, you cannot make an important discovery if you are not asking an important question from the start.*
>
> 3. *Read the literature but don't be crippled by it. It can be daunting to enter a new field because of its considerable history and literature. You have to be knowledgeable about prior work, but it is also good to avoid getting caught in the trap of doing variations of prior experiments and thinking along the lines of existing models. Fresh eyes and some naïveté can be a good thing.*
>
> 4. *Persistence is more important than brilliance. If you are not naturally brilliant (my case), you can still do well in experimental science if you are persistent. The converse is harder.*

① 中外学术情报微信平台．26 岁一年发 4 篇 Cell，他说搞科研要有“十诫”. 2019-01-04

② Ron D. Vale. Nature Medicine. 2012，18(10)：1486-8. DOI：10.1038/nm.2925

第三节　文献与专著

信息爆炸时代，面对大量文献，我们不得不采用快速阅读的方法获取最直接、有用的信息，以提高效率。但是阅读经典文献、热点文献、最新文献，并不能取代阅读专著对本领域进行系统学习的作用。不读专著的缺点包括但不局限于：

1. 迫于论文和学位的压力，快速阅读与精读多局限在与论文选题有关的文献；本领域以外的其它相关文献的阅读，多通过“蜻蜓点水式”方法快速略过，因而缺乏系统性研读。简单说，研究生文献阅读的范围越来越狭隘，影响和制约了写出高质量论文的可能。请注意，高质量论文与在高质量期刊上发表论文的内涵是不相同的。例如，很多被诺奖委员会引述的得奖论文，并非发表在 CNS 等国际顶尖期刊上，而是在 IF 较低的优秀专业期刊上。

2. 由于科学论文总字数受限，文中介绍的理论相对扼要，相关理论框架也多为浅尝辄止。从构建基础理论体系看，文献阅读对研究生完善知识体系的帮助作用在逐步变小。研究生对所在学科认知维度的缩小，不利于其后期的学术生涯发展。

3. 由于对本研究领域缺乏框架性的系统概念，很多基础性常识知之甚少，在阅读文献时，专业敏锐性不强，无法捕捉到重要信息，发现科学问题或受到启示发现解决科学问题新的方法或思路的可能性越来越小，成为“为了文献综述而综述”。通常表现为，“谁何时在什么论文上谈及做过什么事情得到了什么结论”，而不是“哪篇文章通过探讨什么现象回答了什么科学问题揭示了什么样的本质进而为什么领域/理论体系的完善做出什么样的贡献”。

或许基于以上原因，撰写的科学论文或被认为理论创新不够或普适性不强，不能在高质量期刊上得以发表。

这涉及到学科专业宽基础的问题。很多学生在本科甚至硕士阶段专业基础课学习不够扎实、视野不够开阔，到了博士阶段科研后继乏力。不得不面对“书到用时方恨少”的现实窘境。必须通过系统性再学习的方式重新获取本专业的学科基础理论，或与科研论题紧密相关的学科基础理论。

系统学习相关学科基础理论最好的一个方法，就是精研经典学术专著。其实，在有较雄厚相关基础理论的情况下，文献阅读效率才会更高。这是因为：

1. 阅读过程中，比较容易识别出论文质量的高低、判断出论文参考价值的大小，不会被轻易误导持片面化或不正确的观点。

2. 随着阅读量的增大，对本领域研究趋势判断的思路逐步清晰，能够判断出论文主题及可能的创新，以及该研究对于本领域理论体系所产生的可能的贡献。因而易于结合自身实际，制定出未来研究方向和目标，避免走弯路，提早产出科研成果。

第四节　思考与练习

一、课后思考

1. 收集文献的工具、方法本身并不难也不复杂，初学者也比较容易掌握。关键是如何做到运用自如。应尽快结合就读院校现有数据库情况，熟悉合适自己的检索工具和方法。知道

的越早越好。

2. 文献不能完全替代学术专著。初学者如果能在初始阶段打下较好的理论基础，后期科学论文写作过程中做到文献与专著阅读相结合，科研之路将更加顺畅。建议初学者在有限时间内，平衡好各种长期与短期、重要与不重要事项之间的关系，尽可能多的阅读一些经典书籍。哪些书籍可谓经典？有没有书单？英文典籍可有中译本？这些疑惑都需要逐一搞清楚。

3. 万丈高楼平地起，阅读文献是科学研究的基础。检索出本领域中最重要的、较为全面的参考文献的基础性作用显而易见。初学者能够从入学伊始，就积极储备必要的阅读资料，做好及时更新，很有必要。“亡羊补牢为时不晚”固然不错，但“世上没有后悔药”的“警钟”更需“长鸣”。

第一讲的设定目标需要相应的工作实施计划。虽然购买或借阅书籍、下载及打印都比较容易完成，耗时也少，但明确研究方向，确立选题，整理文献，厘清思路，寻找到研究空白(knowledge gap)和突破口等后续工作，既费时又费力，绝不是“一蹴而就”可以完成的。加之，从投稿、审稿、修稿到见刊的发表周期不可预见。所以，还是“早起的鸟儿有虫吃”好啊。简言之，做什么？怎么做？何时做？时间节/截点是什么？要学会做到心中有数，逐步稳步推进。

二、课后练习

通过完成上一讲课后作业，初学者应该已经明确了研究生阶段的研究方向和主题。因此，本讲需完成以下练习：

1. 读者所学领域有哪些重要学术期刊？这些期刊之间在发表论文上具有什么样的选题偏好？建议制作一个 list，标注出常见期刊的一些基本信息。

2. 通过什么工具和方法可以利用就读院校数据库或其它途径，在这些重要学术期刊上下载到 full context？如果不能的话，如何弥补？

3. 阅读本领域最新相关研究成果很重要，但如果能够与文献作者本人进行面对面的交流，不是更好么？通过会议可以开拓视野、更新资讯。有时会遇到业内重要期刊编辑与会，甚至举办平行的专场会议。可见参加本领域重要学术会议是件一举多得的好事。有必要了解本领域有哪些重要的学术会议。了解到与这些会议相关的最新信息获取渠道。有必要再次与导师沟通。沟通前，作为一作的你，还需要提前做好哪些准备呢？