



普通高等教育“十二五”规划教材

Academic English in  
Agriculture and Biology

农业和生物科学  
专业英语

谭万忠 王进军◎主编



科学出版社

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# 农业与生物科学专业英语

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北京

## 内 容 简 介

迄今国内绝大多数高校及大多数专业都开设了专业英语课程，但已有的相关教材和课程教学内容几乎均仅限于专业文献的选读，这样既限制学生学习课程的兴趣也影响教学质量。本书是作者对学习和教授专业英语课程的经验与教学成果的总结，其内容和编排系统都较新颖。全书内容分为9章，第1章概述专业英语的相关概念、课程内涵及学习策略；第2章讲述英文词汇学与词汇快速扩充方法；在第3章介绍提高文献阅读效率的技巧之后，第4章选编8篇农学与生物学文献供学生进行阅读实践；第5~7章讨论英语的写作基本理论知识，包括文章的组织结构与衔接、常见写作错误与校正及重要的语言程式；第8~9章分别讨论事务信函和科研论文的写作。每章都附有中文提要和练习题，书末附有不规则动词和名词、常用拉丁语词组及英语词缀等重要参考知识。

本书可作为农林、生物和环境等学科各专业的本科教材使用，也可作为其他专业学者和英语爱好者的参考用书。

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## 前　　言

我国最早开设专业英语课程的历史可能要追溯到 36 年前。笔者是“文化大革命”结束后于 1977 年恢复高等学校招生时考进大学的第一届本科生之一。记得 1979 年我们大三下学期时，教授我们专业课的老师就首次给我们开设了“专业英语”这门新课程。据后来了解，当年全国其他部分重点大学的一些专业也开设了该课程。记得笔者学习的“专业英语”课程是 54 学时的专业选修考查课，当时没有任何教材，老师只有从 Vander Plank(1963)主编的《植物病害高级论著第四卷》[*Plant Disease: An Advanced Treatise (Volume IV)*]中复印的 20 多页资料，在每堂课上讲解文献中的生词和语法，并逐字逐句地进行翻译。虽然该授课教师是一位国内较知名的植物病理学教授，其英文水平相当高，专业和各方面的知识非常渊博，课堂讲授也充满有趣的故事，并且社会上也公认 77 级学生（“文化大革命”后的首届大学生）是勤学上进的，但笔者却注意到当时我们绝大多数同学对该课程根本提不起兴趣，觉得该课程枯燥无味。笔者本人当时也觉得学习该课程只是为了完成应付课程考试的“任务”，因为那些专业文献我们学生自己通过查阅词典也能够阅读和翻译，但教授费尽力气对它们进行讲解翻译，学生也不得不到课听讲，所以觉得学习该课程基本上是在虚度时光和浪费精力。

迄今为止，我国几乎所有的本科院校的众多理科专业都开设了“专业英语”课程。据多年的调查和相关资料，全国各地大多数开设的“专业英语”课程的教学内容和授课方法基本上与笔者上学时的“专业英语”课程相似，都是由授课教师选择本专业的一些英文论文和专著文献，在课堂上进行讲解和翻译，学生普遍缺乏对这门课程的学习兴趣和听课积极性，该课程教学基本上达不到应有的质量要求，对学生“专业英语”能力的提高效果非常有限。因此，笔者认为，这样的“专业英语”课程是名不副实的，其最多可以说是“科技英语阅读”课程！

显而易见，造成这种困境的主要原因并不是学生的问题，教学内容不合适才是引起这种状况的关键所在。教育部及有关管理部门和各方面专家都认为“专业英语”非常重要，因此在全国各高校都开设了专业英语课程。对于这门课程到底讲授什么内容，有些专家也进行过一些思考和探索，但探索的结果还是离不开“英文专业文献选读”的一贯格调，至今能查阅到的有关该课程的学术研究论文基本上都是论述课程对专业文献内容的选择。承担“专业英语”课程教学的教师们大多深有体会：“英文专业文献选读”不可能激发学生对这门课程的学习兴趣和热情，也不可能提高教学质量。但是，却没有太多的人对该课程的教学内容提出过质疑和进行过认真的思考、研究。所以，直到目前为止，可见到的一些有关专业的“专业英语”教材都只是选编一些英文专业文献，普遍惯用的课堂教学内容基本上与笔者当年所学的内容相似，仍然是由任课教师讲解选读文献的生词、语法和翻译，只不过选读的文献随不同的专业而不一样而已，如农学和生物学方面此为试读，需要完整PDF请访问：[www.ertongbook.com](http://www.ertongbook.com)

的选读文献大多是涉及生物化学、分子生物学和现代生物技术方面的前沿研究成果内容。实际上，这更增加了学生学习的难度，因为本科生学到的还只是其所学专业的基本理论知识和应用研究技术，尚未接触到“高深莫测”的学科前沿研究内容，即便是这方面的中文文献他们也很难读懂，因而不愿意去阅读，更何况英文文献呢！选读这些文献，无疑只会更加挫伤学生对这门课程的学习热情和兴趣，不可能收到良好的教学效果。因此，我们急需对该课程的教学内容进行深入的研究和改革。

笔者 1984 年留学英国威尔士大学就读微生物学专业，1989 年毕业并取得博士学位后回国，从那年开始便承担了大学本科生和研究生“专业英语”课程教学，算来已有 31 年，先后为应用微生物、植物保护、制药工程和生物安全等农学及生物学专业教授该课程。从当年学习“专业英语”的切身经历和感受，笔者意识到，如果还是以指导学生阅读英文专业文献作为授课内容，学生对该课程还是会没有兴趣，也就缺乏学习积极性，想要教好该课程和收到好的教学效果无疑具有很大的难度。

究竟什么是专业英语呢？在文献中通用的专业英语名词主要有 Technical English, Scientific English, Professional English 和 Academic English 等，还有冠以学科名字的专业英语名词，如 English in Biology, English in Medicine, English in Mathematics, English in Economics 等。无论名称是什么，专业英语都应该被定义为“关于应用英语语言表达不同专业学科知识和技术的科学”，我们认为“Academic English”最能反映专业英语学科的实质内容，也适用于各个不同学科使用，所以我们采用这个名词，并结合农学和生物学方面的文献选读内容，确定本教材的书名为“农学与生物科学专业英语”（Academic English in Agriculture and Biology）。

根据上述定义我们应该明白，任何学科领域的专业英语课程，都不应该将重点放在学科本身的理论技术或者英语语言知识上，而是应当将教授学生“如何用英语语言作为工具正确有效地表达专业科学内容”作为课程的重点内容。笔者多年以来对专业英语课程的内容进行系统的探索研究，并到国内一些高校进行教学观摩和听课调研。通过研究，笔者认为，专业英语是对大学基础英语知识的深化，是研究用英语语言表达各专业学术理论和技术的语言科学。因此，专业英语课程不仅是教授学习者阅读专业文献和熟悉一些专业词汇，而是要使他们通过学习后能更加牢固地掌握大量词汇和英语语言基本理论知识，并在此基础上能够高效地阅读和写作专业及相关方面的科学文献。据此笔者确定了专业英语课程授课内容，已引进课堂教学中应用，并在教学过程中不断地进行补充和完善，于是形成了本书中的各章节内容。采用这些内容的教学实践表明，新的课程内容大大提高了学生的学习兴趣，使他们不再感觉“枯燥无味”。学生学习该课程的积极性大幅提升，每轮课程选修的学生都大大超过计划人数，选课学生的学习积极性被调动起来了，他们从不无故缺课且学习认真，从而大幅度提高了该课程的教学质量。

本教材大体上分为三部分内容。第一部分内容为基本概念和词汇学，第 1 章简略引述专业英语的基本概念、课程的基本内涵及学习专业英语的主要策略，第 2 章讲授英语词汇学与词汇扩充的方法。第二部分内容为阅读，第 3 章总结介绍阅读英文文献的主要技术，第 4 章选编了 8 篇农学和生物学相关领域的文章，供学生阅读练习。第三部分内容为写作，在文献写作基础知识部分，第 5 章特别指出英文写作中常易犯的一些语法、

句法和逻辑错误，同时分析错误的原因并指出改正的方法；第6章分析常见英文文章的组织结构及各部分的平稳衔接过渡，并根据意思分别列出各类连接词；第7章介绍专业英语写作中的10大语言程式（language functions）；第8章和第9章为专业文献写作，分别讲述事务信函和研究论文的写作。

本教材实际上是笔者在国外学习和工作的经验，以及在国内长期从事专业英语教学和研究成果的总结。其内容和编排体系都非常新颖，一般内容用词方面主要考虑易读性，而专业文献中的用词则尽可能突出农学和生物科学专业英语的特点。在多数章节中都配有相应的练习题，书末附有几个具有重要参考价值的附录。在章节编排上既注重各章的独立性，也注重全书的逻辑性和整体性。在语言方面尽量做到“英语化”，避免“中文化”。在有关章节中还给出了例句或范文，如各种“语言程式”中的句式和各种信函的举例，都可以直接或稍加改变后加以参考引用。所以本书除可作为农林和生物科学相关专业本科生教材外，也可供环境、医学和经济学等文理科学者参考。

本教材也是全体参编人员共同努力的结晶。参加编写工作的老师们是来自20多所高校的“专业英语”课程任课教师，他们的英语水平很高，教学经验也非常丰富。当得知本教材的编写任务和内容之后，都对此给予了大力支持，积极建言献策，提出了很多中肯且有建设性的意见，并认真投身于各章的编写和修改中，从而使得现已编入的内容更加完善，更加适应于教学和学生学习的需要。在此，笔者对他们的热诚支持和付出的辛勤劳动表示真诚的感谢！

最后，衷心地感谢您选择使用或阅读本教材！相信她会成为您学习英语的好助手，助您实现英语水平的提升！希望您通过学习，尽快掌握专业英语的知识和技能，顺利步入您理想的职业领域，并在您的职业生涯中建功立业，为科学、为社会、为国家和人民作出辉煌的贡献！另外，由于作者的水平所限，尽管在编写过程中竭力避免，书中不足之处肯定难免。您使用本书时无论发现何种错漏或对本书有何建议，都恳请您与笔者联系([drwztan@126.com](mailto:drwztan@126.com) 或 [1150861448@qq.com](mailto:1150861448@qq.com))并赐教，以便本书再版时作补充和校正。

谭万忠

2015年08月01日于西南大学（重庆北碚）

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# Chapter 1 An Introduction to Academic English

**【提要】**本章主要讨论专业英语的概念、基本内涵及学习策略。专业英语也称为学术英语，它是研究“如何应用英语来有效地表述不同学术学科理论和技术”的语言科学。这里的“表述”主要是“说或写”，即用语音或文字将有关内容正确有效地记述下来呈现给听众或读者。要想能够使用英语进行流利地表达，你需要积累大量的词汇，进行广泛地阅读训练，掌握必要的写作知识和技能。那么，如何才能快速有效地积累英语词汇、大幅度提高英语文献的阅读效率、流利无误地写作科技文献呢？这些就是本教材和专业英语课程要讲授的主要内容。此外，本章还简略讨论了英语学习的一些重要策略和方法，了解这些肯定会让你学好英语有很大助益。

In the literature, a number of nomenclatures for “specialist English” can be found in various natural and social sciences. The most general names are “academic English”, “scientific English”, “technical English” and “applied English”. There are also some more specific names as “scientific English in agriculture”, “technical English in medicine”, “English in chemistry”, “biological English”, and the like. Whatever the name is used, it remains that the general principles and skills of using English to express different academic subjects are studied and discussed in this course. Therefore, the name “academic English” is thought more reasonable and appropriate than all other nomenclatures.

## 1.1 Concept of academic English

As all of us know, English is the most widely used language in the world. However, explanation for the word “academic” may be needed. In various dictionaries, the word “academic” is either an adjective relating to education, especially education in colleges and universities, or a noun referring to a member of an academy, college or university. No matter what, the academic is related mainly to science and technology.

Accordingly, “academic English” may be defined as a language science which studies the theory and skills of applying English language in different academic (sciences and technology) subjects.

Academic English is the genre of English used in the universities and institutes for research, study and teaching. It is the language used in textbooks, in classrooms, and on tests. If you read an article in an academic journal or listen to someone giving a presentation or a talk about an academic subject in an academic environment, academic English is probably being used. If you are studying in an English speaking university you will need to learn this type of English. Native English speakers have to learn academic English too because it is not like the English

that is used everyday by English speakers.

According to such definition, the emphasis of academic English course should not be situated on the elementary knowledge of academic science or on the language itself. It should concentrate on the understandings of how to use the language effectively as a tool to express the academic science. “To express” here would include “to speak”, “to read” or “to write” academic stuffs in English.

## 1.2 Academic English course

Presently, many universities and colleges, or most of their academic majors, have the academic or professional English course for undergraduates or postgraduates in China. Unfortunately, however, there has been no such a textbook for the course that discusses techniques of applying English language in science and technology. There are some textbooks named “*specialized English*”, but most of these are just the kind of “selected readings of literatures”, because they only contained selected papers of individual sciences. Therefore, lecture-deliverers (lecturers or professors) of the academic English course in these institutions only teach the students how to read and understand the literatures they selected from their own specialized subjects. A *specialized English* course lectured in the way of only guiding students to read English literatures in their scientific subjects could arouse boredom but not interest of the students. This situation is obviously abnormal and is bound to adversely influence quality of the course teaching.

It is clear from the above definition of academic English that, as a course in various scientific and technological fields, the emphasis of academic English should be placed neither on the knowledge of the sciences nor on the language itself. Instead, the emphasis should be on the understandings of how to use the language effectively by the students as a tool to express the academic sciences. On the basis of this, the academic English course should teach students:

- ① how to efficiently memorize new words and extend their vocabulary (both common and technical words),
- ② how to effectively read different literatures (not only papers or reviews in a specific subject or field), and
- ③ how to professionally write different documents (not only research papers, but also some other sorts of write-up).

## 1.3 The academic English course book

In the recent decade, a number of academic (specialized) English course books for various curricula (biology, agronomy, forestry, medicine, plant protection, horticulture etc.) were published in China. However, almost all of these books were selected readings of papers or dissertations in individual curricula. This is probably the primary explanation for the only-literature-reading lectures of academic English course in universities and colleges in China.

The present course book is perhaps a breakthrough of the limitation of previous professional

English course books. Based on the above definition of academic English, this book is arranged into three major contents: vocabulary, reading and writing.

1) The vocabulary. Chapter 2 is attributed to discuss the English vocabulary. This chapter outlines the methods of English word formation which includes mainly the conversion, composition, shortening and affixation. The word elements and their roles in forming words are also discussed. These will help students remember words easily and so extend their vocabulary quickly.

2) Academic reading. This part includes two chapters. Chapter 3 summarizes eight useful reading skills. By using these skills it is expected that the readers will greatly improve the efficiency (speed and understanding) of reading English materials. In chapter 4, eight essays on different topics of agriculture and biology were written and presented to provide reading materials for the students pursuing the courses related to biology and agriculture sciences.

3) Academic writing. Chapters 5 to 9 are attributed to academic writing. In Chapter 5, general errors and the causes of these errors in academic writing are distinguished; ways of avoiding and correcting such errors are notified. Chapter 6 analyzes general structures and organization of English articles or essays and how different sentences are assembled together for presenting things or ideas plainly and logically through using various connectives. Many useful connectives are listed into groups according to similarity of their meaning with the three basic connectives *and, or, but*. Chapter 7 introduces the most important language functions which are commonly used in academic writing; various sentence patterns and vocabulary are given for each of the functions. Chapter 8 talks about general principles and structural elements of business letters and about how to write some important business letters. Chapter 9 is the last chapter which presents fundamentals of research paper writing.

## 1.4 Organizing your study

There are some students who always do the right thing at the right time, as if by instinct. They are never late with their work and are always well-prepared for any test that they have to take. Unfortunately, this kind of students is very rare. Most of us find ourselves in a state of panic and unpreparedness at some time or other, or even of deep despair of ever being successful in our studies. We think “if only I had...” usually when it is too late. This is natural or even normal, but it is also avoidable in most cases. We recognize this fact when we say “if I had ...”. Now at the beginning of this course, it is a good time to advise you to organize your studies well by looking at life style as a student and asking yourself if it is helping you to succeed or not.

To help you with this, you will find some questionnaires below. For the first three questionnaires you will see that there are three blank columns. Look at the questions and put a tick in the yes column as appropriate. Leave the “For attention” column empty for the time being.

**1. Class work**

For attention

- 1) Have you got a clear idea in your own mind that the course that you are doing will benefit you?
- 2) In general, do you find the subject interesting and stimulating?
- 3) If you had problems, would you discuss them with your teacher?
- 4) Do you miss class from time to time?
- 5) Are you often late for class?
- 6) Do you feel that the amount of your work is too much for you?
- 7) Do you complete and hand in your homework on time?
- 8) Do you have a system for doing the work that you are assigned?
- 9) Do you have a system for keeping notes, references etc. on the subject?
- 10) Do you take outline notes of lectures, discussions and important texts etc.?

Yes | No

**2. Private study**

For attention

- 1) Do you often go to library where you can work during your free time?
- 2) Do you have a special space for your free time study?
- 3) Do you know how many hours a week you spend
  - a) in classes?
  - b) on private study?
  - c) recreation (sports, etc.)?
- 4) Have you made a plan of the number of hours a week you will spend on
  - a) revision?
  - b) homework?
  - c) reading?
- 5) Do you preview and review your lectures?
- 6) Do you use internet resources in your daily studies?

Yes | No

**3. General way of life**

For attention

- 1) Do you have a hobby or recreation which takes your mind away from your study for a while?
- 2) Do you take part in sport or any other regular exercise?
- 3) Do you get enough sleep (8 hours per night)?
- 4) Do you eat proper balanced diet?
- 5) Do you make lists of things that you have to do?
- 6) Have you got a small notebook in which you can write things (ideas, references, etc.) down?

Yes | No

#### 4. Special problems

The problems that are listed above apply to all students. This section lists some other more serious problems and gives you opportunity to think about them and perhaps discusses them. Write down your comments.

- 1) Do you find it difficult to relate to your roommates or classmates?
- 2) Do you have financial problems in making “ends meet”?
- 3) Do you find it difficult to get used to the weather here?
- 4) Do you find that it takes you a long time to read books and papers in English?
- 5) Are you conscious of any problems in writing English?
- 6) Do you have difficulty in following lectures or tutorials?
- 7) Have you got a good dictionary, grammar book of English?
- 8) Have you got a personal computer for internet surfing?

Now compare your answers with those of the average successful students given at the end of this chapter. As you check through each questionnaire, put a large cross sign (×) in the space on the left-hand side (For attention) where your answer is different.

Go over the items labelled with a cross sign (×). These items show areas of weakness in you as a student. Some of the weakness may be less important than others. For example, it is possible to do well in your studies even if you do not have a private place of study; lack of interest in the subject may be more serious matter.

When you finished, discuss your weakness points and also any comments you have written down in answering the questionnaire 4 “special problems” with your roommates or lecturer.

#### 5. Need for a personal timetable

One of the things you should know is where your time goes. It is very easy to deceive yourself that you are working harder than you really are. To help you keep track of how you spend your time. You will find a blank timetable here that you may copy to suit your own requirements(Table 1-1).

**Table 1-1 Dairy in a week**

Hour	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
06						
07						
08						
09						
10						
11						
12						
13						