

大学专业英语系列教材

理工专业 英语教程

A COURSE IN
SCIENCE-BASED
ENGLISH

主编 彭漪 张敬源



中国人民大学出版社

大学专业英语课程教材

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SPECIALIZED ENGLISH

主编 张毅 副主编 王健 王健

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第 一 册

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图书在版编目(CIP)数据

理工专业英语教程. 第一册/彭漪, 张敬源主编.
北京: 中国人民大学出版社, 2002
大学专业英语系列教材

ISBN 7-300-04379-8/H·337

I. 理…

II. ①彭… ②张…

III. 英语-高等学校-教材

IV. H31

中国版本图书馆 CIP 数据核字(2002)第 066811 号

大学专业英语系列教材

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编者 郑晓伟 郭侃俊 王 华 彭 漪 张敬源

出版发行: 中国人民大学出版社

(北京中关村大街 31 号 邮编 100080)

邮购部: 62515351 门市部: 62514148

总编室: 62511242 出版部: 62511239

本社网址: www.cru-press.com.cn

人大教研网: www.ttrnet.com

经 销: 新华书店

印 刷: 三河市汇鑫印务有限公司

开本: 787×1092 毫米 1/16 印张: 12

2002 年 10 月第 1 版 2002 年 10 月第 1 次印刷

字数: 209 000

定价: 15.00 元

(图书出现印装问题, 本社负责调换)

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前 言

《大学专业英语系列教材》是根据教育部最新颁布的《大学英语教学大纲》的基本要求，为大学英语学习四年不断线而编写的一套教材。该套教材的编写得到了教育部高等教育司的大力支持。

本套教材分法学专业英语、经济专业英语、管理专业英语、人文科学专业英语和理工专业英语，每一系列包括三个分册，每一分册供一个学期使用。全套教材由复旦大学、中国人民大学、南京大学、北京科技大学联合编写，南京大学杨治中教授担任总主编。法学专业英语教程由赵建、夏国佐教授主编；管理专业英语教程由邱东林、华宏鸣教授主编；经济专业英语教程由翟象俊教授主编，参加编写的有张勇先教授等；人文科学专业英语教程由湛馨荪教授主编，参加编写的有郭庆民、张卫平和章安祺教授；理工专业英语教程由彭漪、张敬源教授主编。全套教材由专业英语教师和公共英语教师共同编写。

本系列教材具有如下特点：

一、考虑到我国大学生学完两年后的实际水平，课文的选材、注解和练习以《大学英语教学大纲》所要求的四级为基础。

二、教材在内容和语言上贯彻循序渐进的原则。在内容上，第一册主要涉及本专业的原理和基础知识，第二册、第三册主要涉及本专业的历史及专家论点；其要旨在于帮助学生完成从基础英语到专业英语的过渡。在语言上，选材从难度、可读性等方面出发，贯穿了由浅入深的原则。

三、考虑到《大学英语教学大纲》对专业英语学时和阅读量的要求，我们主要采用了主、副课文（阅读文章）制，对主课文从注解和练习两方面进行了重点处理，用作教师课内重点讲解的内容，副课文（阅读文章）主要供学生课后自学，以便对主课文从语言 and 知识两方面起到巩固作用。

四、本教材强调理解的准确性和学生的应用能力，因此，练习针对这两方面进行了重点编写，配有理解、语言应用（包括词汇应用、语句应用）等练习，理解题强调准确理解、思考、分析、评价、讨论，每课练习中所采用的例句从知识和语言上均与主课文或已学过的课文有关。

五、为方便自学，书后提供了主课文的参考译文和练习答案。

六、全套五种教材在遵循总的编写原则的同时，又根据各自课程的知识特点自成体系。

由于本书编写仓促，不足之处在所难免，敬请读者指正是幸。

编 者

2001年6月

《理工专业英语教程》使用说明

《大学英语教学大纲》规定：大学英语教学的目的是培养学生具有较强的阅读能力和一定的听说读写能力，使他们能用英语交流信息。大学英语教学分为基础阶段（一年级至二年级）和应用提高阶段（三年级至四年级）。其中，在应用提高阶段对专业英语阅读能力的要求如下：能顺利阅读有关专业的原版教科书、参考书及其他参考资料，能掌握其中心大意，抓住主要事实和有关细节，对其中重要的论著和文献等材料能正确理解、抓住要点，并对其内容进行分析、推理、判断和综合概括，阅读速度达到每分钟70词。

本套教材就是为了培养学生科技类文献资料和专业英语阅读能力而编写的，目的在于帮助理工科学生在顺利完成大学英语基础阶段的学习后，能够将所学英语知识用于专业英语文献的阅读，熟练地以英语为工具，获取专业学习所需要的信息。

一、教学对象

本教材是理工类专业科技英语教学用书，适用对象为已经顺利完成基础阶段英语学习的理工类专业大学生。具有一定英语基础、对科技英语感兴趣的其他读者也可阅读。

二、编写原则

本教材的编写力求体现两个原则：一、循序渐进性。本书的编写既注重与大学英语基础阶段的衔接，便于学生能在大学英语基础阶段学习的基础上顺利过渡到专业英语的学习，同时在选材的长度、难度以及课后练习的编写上也都体现了由易到难、由浅到深、循序渐进的原则。二、注重培养学生实际应用英语的能力。本书的编写不以通过任何英语水平考试为目的，重在培养学生运用所学英语知识进行具有一定难度的口语及书面语交际的能力，在使用英语的过程中发现语言基础知识的不足，并有目的、有针对性地弥补语言基础知识方面的欠缺，真正做到学有所用、以用促学、边用边学。

三、课文选材

本教材的选材着力新颖、规范。我们注意到国内图书市场已经有一些专业英语阅读类读物如计算机英语、冶金英语、机械工程英语等，本套教材的着眼点不在于像上述教材那样用英文介绍各专业的基础知识，因为通过专业基础课和专业课的学习学生对这些基础知识已经耳熟能详。理工类专业错综庞杂，而学生普遍欠缺的是如何完成由基础英语学习向专业英语学习的顺利过渡，阅读专业文献时做到得心应手。为此，本教材在选材内容上不局限于某一特定专业，但所有选材均反映了科技文献语言正式规范、句式严谨复杂、各类从句重迭出现等特点，突出了科学与社会这一主题，通过学习语言表达的

内容进一步巩固对语言知识的掌握。

四、教材内容结构

本教材由正文和附录两部分组成。正文包括十个单元，每个单元含有正课文一篇、补充读物一至两篇，围绕同一主题展开。这样编写便于学习者就同一话题了解更多的信息，从而达到阅读时积极思维、批判性地阅读的目的。正课文后的阅读理解旨在检查学生对课文内容的理解情况；词汇练习旨在培养学生熟练运用已知词汇，借助必要的构词法知识，扩大词汇量；完型填空部分是对文章内容的高度浓缩与概括，既有助于进一步加深对所学课文的理解，同时又能帮助学生把握所读科技文献的主要信息，为口头或书面交流文献内容打下基础；翻译部分旨在培养学生准确表达给定信息以及翻译英汉科技文献的能力；口语练习部分旨在培养学生就某一科技话题连续完整地表达自己思想的能力；本册作文部分的重点在于培养学生把握科技英语文章的结构与特点，能够按照逻辑把凌乱的科技英语句子组织成完整的文章的能力。

本教材的附录包括“练习参考答案”、“课文译文”以及“词汇总表”三部分内容。

五、教学方法与教学安排

本教材的教学活动应力求体现“以学生为中心”的教学思想，在课堂教学中建议教师要发挥“导”而不是“教”的作用，最大限度地让学生通过阅读，找出并把握所读科技文献的内容，尤其是培养学生用英语宣讲文献内容、表达自己观点的能力。

本教材的教学安排为 20 教学周，每周两学时，每两周完成一个单元，课内教学活动时间和学生自主学习时间可由教师自行安排。

限于编者水平，错讹之处在所难免，敬请读者批评指正。

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Unit One

Text:

WHAT ARE CLONES?

They are not what you think they are.

Lee M. Silver

“Words that we expect to be generally used ... should be short, euphonious, phonetically spelled, easily pronounced and different from any other word in ordinary use so that it [sic] will not suggest any other meaning than the one desired.” With this explanation, Herbert J. Webber coined the word “clone” in 1903 to describe a colony of organisms derived asexually from a single progenitor. Webber’s contribution to “a more exact expression to our thoughts” found quick acceptance among botanists and gained favor among biologists working with cells in culture. As late as 1965, the science-fiction novel *The Clone* still used the word according to its original connotation (albeit with an absurd plot) to describe a cellular blob expanding across the sewers of a city.

A clone of animal siblings can form naturally, on occasion, as a result of asexual reproduction from a single progenitor embryo. However, in contrast to plants, whole animals cannot be grown directly from cells that have begun to differentiate into a specialized form. Forty years ago, developmental biologists wondered whether this was a true biological limitation or just a technical difficulty. It was this question, rather than interest in cloning *per se*, that motivated John Gurdon to perform the experiments in which he transplanted nuclei from normal frog cells into enucleated eggs to produce adult frogs. Looking back now at Gurdon’s review of his research in a 1968 *Scientific American* article, I am struck that only passing reference is made to clones (as colonies of embryos),

with attention focused instead on the developmental potential of differentiated cells.

The popular understanding of cloning has its roots in Alvin Toffler's 1970 book *Future Shock*. Toffler took a clear scientific concept and muddled it into the fantastical prediction that "man will be able to make biological carbon copies of himself". Unfortunately, this fictitious version of cloning was presented in a highly influential, non-fiction book. In one fell swoop, clones morphed from the simple progeny of asexual reproduction to sophisticated products of biological engineering created by scientists bent on controlling nature.

Through the popular media, this version of a clone was rapidly integrated into every major language. Ironically, popularization was helped by the very criteria by which Webber had aimed to ensure proper use of the word. The concept of a clone extended to inanimate objects such as computers (PC clones), as well as becoming a figure of speech to describe people ("Tony Blair is a clone of Bill Clinton"). Until 1997, however, the public felt safe in its knowledge that "real" human clones — biological carbon copies — were still securely in the realm of science fiction.

The sense of security was shattered the day that video clips of Dolly the cloned sheep, prancing in her pen, were beamed down to television screens around the globe. To all appearances, Dolly had been created full-grown within a Frankenstein-like Scottish laboratory. Suddenly, the world had a name and an image to attach to the Promethean-like power of bioengineering.

Insight into the current popular view of cloning can be gleaned from the recent US cloning film, *The 6th Day*. The story begins with a series of newspaper headlines reporting the cloning of Dolly and the completion of the Human Genome Project. The process of cloning is then depicted in stunning detail, including imprinting the DNA as well as the mind and physical features of a living person onto a blank body that is then brought to life.

It is not just the lay public that views cloning in this way. In a recent survey of my students, I discovered that most thought that cloning could do more than just reproduce a genome. A leading US publisher of children's books recently released *Who Cloned the President?*, presenting the full-grown-copy version of cloning as a scientific fact. The real US president, George W. Bush, has said that "no research to create a human being should take place in the United

States”; and Ian Wilmut, who brought us Dolly, writes that “we would never be in favor of using cloning technology for copying a person”.

I was recently contacted by a Dutch television producer for my reaction to reports that a fringe religious group was ready to use cloning to bring dead children back to life. For the umpteenth time, I explained that no technology exists for making copies of people, and that real cloning technology might only lead to the birth of a unique and unpredictable child who had the same DNA sequence as someone else, but nothing more. The producer was abrupt and dismissive, “Dr. Silver, you are not aware of what cloning can accomplish. Clones are not what you think they are.”

After years of believing otherwise, I realized that he was right. The scientific community has lost control over Webber’s pleasant-sounding little word. Cloning has a popular connotation that is impossible to dislodge. We must accept that democratic debate on cloning is bereft of any meaning. Science and scientists would be better served by choosing other words to explain advances in developmental biotechnology to the public.

Notes

1. Lee M. Silver: a professor who works in the department of Molecular Biology and the Woodrow Wilson School of Public and International Affairs, Princeton University, Princeton, New Jersey, USA
2. sic: a Latin word, meaning “stand for what it is in the original”
3. per se: a Latin word meaning “by itself” 本身; 自身

New Words and Expressions

- | | |
|---------------------------------------|--|
| 1. euphonious [ju:'fəuniəs] <i>a.</i> | sounding well; pleasant to the ear 悦耳的 |
| 2. colony ['kɒləni] <i>n.</i> | a group of animals or plants of the same kind living or growing together 同类的或群居在一起的一群动物或植物 |
| 3. asexual [ei'seksjuəl] <i>a.</i> | having no sex 无性的; 无雌雄之 |

- asexually *ad.*
4. progenitor [prəu'dʒenitə] *n.* 分的
an ancestor of a person, animal or plant; the founder of the family 祖先 (fml.) 1. offspring 子女 2. descendant 后代
5. progeny ['prədʒəni] *n.* idea which a word makes one think of in addition to the main meaning (指词语) 隐含意义; 言外之意
6. connotation [ˌkənəu'teɪʃən] *n.* of or concerning cells 细胞的; 由细胞组成的
7. cellular ['seljələ] *a.* small round mass 一团, 一点
8. blob [blɒb] *n.* underground pipe or passage that carries sewage away to be treated or purified 下水道; 阴沟; 污水管, 排水管
9. sewer ['sjuə] *n.* (fml.) any one of two or more people with the same parents; brother or sister 兄弟姐妹
10. sibling ['sɪbliŋ] *n.* young animal or plant in the early stages of its development before birth or before coming out of its egg or seed 胚, 胚胎
11. embryo ['embriəu] *n.* remove the nucleus of 去……的核, 使无核
12. enucleate [i'nju:kliet] *vt.* imagined or invented; not real 想像的; 虚构的; 假的
13. fictitious [fik'tɪʃəs] *a.* in a single deadly action 狠狠一下子
14. at/in one fell swoop forms and structures of animals and plants 形态 (描述遗传多态现象的个体变异体)
15. morph [mɔ:f] *n.* not alive, esp. in the way that human or animals are 无生命的 ~ objects 无生命物体
16. inanimate [i'nænimət] *a.* move in the specified direction in a
17. prance [praɪns] *v.*

- | | |
|-------------------------------|--|
| 18. beam [bi:m] v. | high-spirited or arrogant way 手舞足蹈地或神气活现地朝某方向移动
broadcast (a message, television program, etc.) 实况转播
beam sth. (to ...) from |
| 19. stunning ['stʌniŋ] a. | surprising or shocking 令人震惊的, 令人惊讶的 |
| 20. genome ['dʒi:nəʊm] n. | a complete haploid set of chromosomes with its associated genes 基因组, 染色体组 |
| 21. fringe [frindʒ] n. | a marginal, peripheral or secondary part 边缘, 外部 |
| 22. umpteenth [ʌmp'ti:nθ] a. | for the ~time 许多次, 无数次 |
| 23. dismissive [dis'misiv] a. | dismissing in a rude, brief and casual way (以粗暴、漫不经心的态度) 打发或表示拒绝的 |
| 24. dislodge [dis'lɒdʒ] v. | move or force sb. /sth. from a previously fixed position 将某人/某物逐出或移开 |
| 25. bereft [bi'reft] a. | (pred.) (作表语) ~ (of sth.) deprived of (a power or quality) 失去 (某种能力或性质) ~ of reason / speech / hope etc. |

Exercises

I . Reading Comprehension

Answer the following questions according to the text.

1. What is the word "clone" intended to describe?
2. What is the response of the scientific fields to the word "clone" coined by Webber?
3. Why did John Gurdon carry out the transplant experiment?
4. What is Toffler's prediction?

5. What is the threat brought about by clones to human beings?
6. What does the description of "Tony Blair is a clone of Bill Clinton" show?
7. What was the response of the public after Dolly the cloned sheep was beamed down to television screens around the globe?
8. What was the film "The 6th Day" about?
9. How did most students view cloning according to a recent survey of them?
10. How did the US president, George W. Bush view human cloning? What did he say about it?

II . Vocabulary

Complete the following sentences with the appropriate forms of the words given in the brackets.

1. The serious pollution is the consequence of many factories acting independently and _____ (think).
2. Equally troublesome is that incoming freshmen do not realize the positive and ongoing _____ (contribute) of mining to the high standard of living enjoyed in the western world.
3. The sight of the medical researchers' placing a baboon heart into the chest of a little baby was _____ (describe) bizarre.
4. Nevertheless, the firm's scientists claimed that their paper provides the first proof that reprogrammed human cells can supply tissue for _____ (transplant).
5. The word "clone" originally _____ (connotation) asexual reproduction from a single progenitor embryo.
6. The US president George W. Bush is very _____ (dismiss) of the research to create a human being.
7. All the events and characters in the book "Future Shock" are _____ (fiction).
8. The city's rapid _____ (expand) has meant that many inhabitants do not have adequate water supplies, sewage systems or public transport.
9. The latest techniques appear to be a major step forward in _____ (differentiate) and growing these cells, and in achieving this more swiftly and simply.
10. The task of scientific _____ (popularize) is of great importance to the de-

velopment of our society.

III. Cloze

Fill in each of the following blanks either with a word concerning the subject matter or with a word necessary to complete the sentence structure. Try to use the words in the text.

In 1903, Herbert J. Webber coined the word “clone” to describe a colony of organisms derived (1)_____ a single progenitor, (2)_____ were soon accepted by botanists and gained favor among biologists working with cell in culture. In the (3)_____ years, science-fiction novels, films and books about clone had come (4)_____. Thus the popular understanding of cloning had (5)_____ roots. Unfortunately, in a non-fiction book, clones created by scientists bent (6)_____ controlling nature. The concept of a clone extended (7)_____ inanimate objects such as computer (PC clone). (8)_____, the public felt safe in its knowledge (9)_____ those “real” human clones were still securely in the realm of science fiction. The sense of security was shattered the day that the Dolly the cloned sheep was known to the public. More (10)_____, the process of cloning is then depicted in stunning detail, (11)_____ imprinting the DNA as well as the mind and physical features of a living person (12)_____ a blank body that is then brought to life. It is not only the lay public but also the professionals in the field of science that view cloning in this way. From (13)_____ on, clones are not (14)_____ you think they are. The scientific community has lost control (15)_____ Webber’s pleasant-sounding little word. Cloning has a popular connotation that is impossible to dislodge.

IV. Translation

Section A

Translate the following sentences into Chinese.

1. An American biotech company has claimed that it has created the first human embryos ever produced by cloning, provoking a storm of criticism and reigniting the ethical debate about the promises and dangers of biology’s most contro-