



中科院城市环境研究所 研究生科研训练讲座-3

学术论文的“八股”写作法

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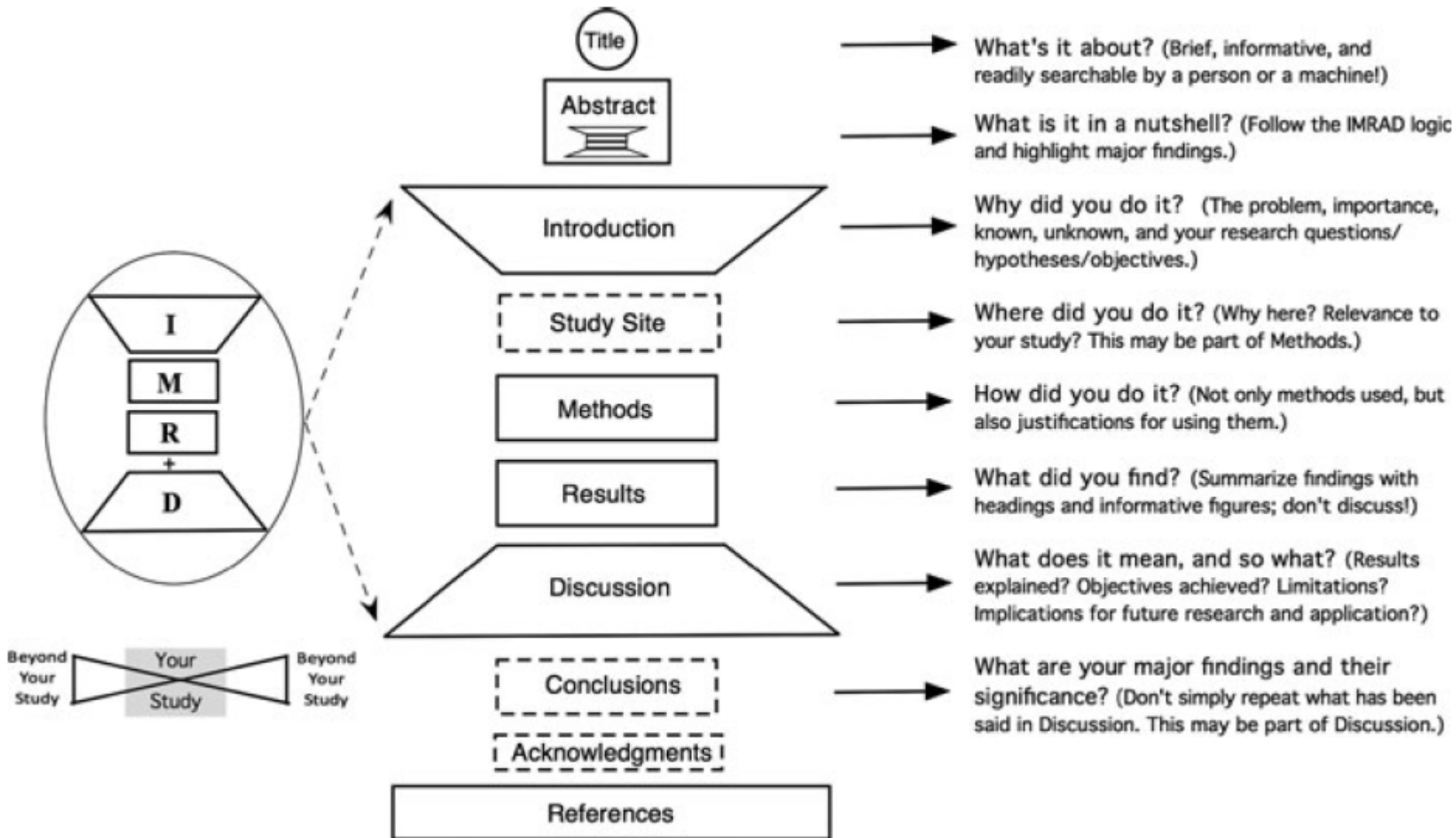
现代学术论文的类型

- **Research Article**
- **Review**
- **Comment**
- **Perspective/Forum**
- **Book Review**

研究论文的类型/贡献

- 提出新概念或新问题
- 描述案例或数据
- 总结规律与模式
- 阐明动力与机制
 - 假设+检验
- 探索趋势与方向
- 提出方案或办法

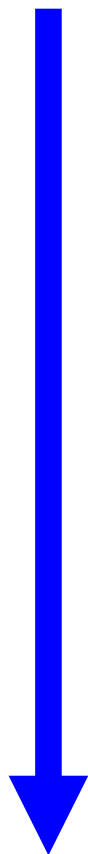
IMRAD的论文结构



中科院城市环境研究所，陈伟强

学术文章的“八股”结构

1. 题目
2. 摘要
3. 图表
4. 讨论
5. 结论
6. 结果
7. 引言
8. 方法



阅读顺序

1. 题目
2. 引言
3. 图表
4. 结果
5. 讨论
6. 摘要
7. 结论
8. 方法



写作顺序

题目：简明

EARTH HISTORY

The Anthropocene is functionally and stratigraphically distinct from the Holocene

Colin N. Waters,^{1*} Jan Zalasiewicz,² Colin Summerhayes,³ Anthony D. Barnosky,⁴ Clément Poirier,⁵ Agnieszka Gałuszka,⁶ Alejandro Cearreta,⁷ Matt Edgeworth,⁸ Erle C. Ellis,⁹ Michael Ellis,¹ Catherine Jeandel,¹⁰ Reinhold Leinfelder,¹¹ J. R. McNeill,¹² Daniel deB. Richter,¹³ Will Steffen,¹⁴ James Syvitski,¹⁵ Davor Vidas,¹⁶ Michael Waples,¹⁷ Mark Williams,² An Zhisheng,¹⁸ Jacques Grinevald,¹⁹ Eric Odada,²⁰ Naomi Oreskes,²¹ Alexander P. Wolfe²²

Outsourcing CO₂ within China

Kuishuang Feng^a, Steven J. Davis^b, Laixiang Sun^{a,c,d}, Xin Li^e, Dabo Guan^{e,f,g}, Weidong Liu^h, Zhu Liu^{f,i}, and Klaus Hubacek^{a,1}

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Edited by M. Granger Morgan, Carnegie Mellon University, Pittsburgh, PA, and approved May 7, 2013 (received for review November 19, 2012)

Metal spectra as indicators of development

T. E. Graedel¹ and J. Cao

Center for Industrial Ecology, Yale University, 195 Prospect Street, New Haven, CT 06511

Edited by William C. Clark, Harvard University, Cambridge, MA, and approved October 20, 2010 (received for review July 30, 2010)

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引言：三部分

➤一：研究及其对象的重要性

- 简明直接的描述研究对象及目标

➤二：研究进展及其主要不足

- 涉及主要的研究文献
- 不面面俱到、不罗里吧嗦
- 用自己的话高度凝练总结
- 一般不要大段引用或者详细介绍某文献

➤三：本研究的内容及其逻辑

图表

- **规范：** 符合基本规范和杂志要求
- **自明：** 无须阅读正文即可了解必要的信息
 - 图中的文字+图题的文字
- **可视：** 字体、颜色、线条、图例
 - 避免太小的文字和不清晰的线条
 - 避免可视性和对比性差的颜色与图例
- **美观：** 雅俗共赏、不俗不艳不单调

结果

- 顺序：最重要→最不重要
- 3-5个方面，不面面俱到
- 有层次性，不啰里啰嗦不得要领
- 第一句概括一段话的核心内容
- 每一句话直奔主题，不复述方法
- 与方法部分的结构和顺序相对应
- 不引用文献（只有引言、讨论、方法）

讨论

1. 独特贡献

- ① 方法学，应用价值，政策启示
- ② 与既有文献或常识的差别
- ③ 对既有文献的验证或加强

2. 与既有文献差别或相似的原因

3. 研究方法或结论的局限性

4. 数据或结论的不确定性

5. 后续研究计划和展望

摘要： 2+6/7+2/1

- 2：研究背景和重要性
- 6/7：主要发现和结论
- 2/1：启示和应用价值

Stocks of products in use are the pivotal engines that drive anthropogenic metal cycles: They support the lives of people by providing services to them; they are sources for future secondary resources (scrap); and demand for in-use stocks generates demand for metals. Despite their great importance and their impacts on other parts of the metal cycles and the environment, the study of in-use stocks has heretofore been widely neglected. Here we investigate anthropogenic and geogenic iron stocks in the United States (U.S.) by analyzing the iron cycle over the period 1900–2004. Our results show the following. (i) Over the last century, the U.S. iron stock in use increased to 3,200 Tg (million metric tons), which is the same order of magnitude as the remaining U.S. iron stock in identified ores. On a global scale, anthropogenic iron stocks are less significant compared with natural ores, but their relative importance is increasing. (ii) With a perfect recycling system, the U.S. could substitute scrap utilization for domestic mining. (iii) The per-capita in-use iron stock reached saturation at 11–12 metric tons in \approx 1980. This last finding, if applicable to other economies as well, could allow a significant improvement of long-term forecasting of steel demand and scrap availability in emerging market economies and therefore has major implications for resource sustainability, recycling technology, and industrial and governmental policy.

结论： 2+4+4

➤2: 目标和方法

➤4: 结果的总结

➤4: 讨论的总结

➤不涉及背景和进展

➤不引用别人的文献

方法

- 层次性：纲举目张、先粗后细
- 必须十分的严谨和精确，仔细核对每一个公式和化学式
- 避免过多不必要的细节
- 把必须但琐碎的内容放到Supporting Info.

常见错误

➤ 没错但是没用的话

- This figure shows the results ...

➤ 没错但是无关的话

- 提了某个建议，但不是根据文章的研究结果

➤ 以数字开头写一句话

➤ 以虚词或连词开头写一段话

➤ 有效数字过多，一般不超过2位有效数字

读书破万卷，下笔如有神

以写带读，以读促写

从模仿到创新

开始时，不妨慢一些

**要有爬坡的艰难感
没有艰难感的文章，别写太多**

**东北的大米很香
因为一年只有一季**

**每天思考一点、写作一点
定期冲刺一下、集中完成**

从士兵到将军

合作、合作、合作

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