

99901136 科学与 AI 写作 (Scientific and AI Writing)

1. 课堂讲授学时 **Lecture Hours: 32**
2. 课堂实验学时 **Laboratory Hours: 0**
3. 课下研讨学时 **Colloquia Hours: 16**
4. 学生课下投入学时 **Individual Study Hours: 16**
5. 学分 **Credits: 2**
6. 开课学年学期 (如果有强制性的要求则必须填, 否则可以不填) **Occurrence:**
7. 先修课程 **Prerequisite(s):** 必须先修的课程直接写课程编号和课程名称, 建议先修的课程在课程名称后用*号标注, 并在下一行注明: ***Recommended, not required as prerequisite: English (英语)**
8. 课程概要 **Course Description:** 100 字以内, 学习内容以学术关键词出现。

This course equips students with the necessary skills to publish high-quality research in top-tier international journals. Core topics include the IMRAD structure, scientific language style, peer-review processes, and research ethics. A significant focus is placed on Generative AI (e.g., DeepSeek, ChatGPT) and Prompt Engineering. Students will learn to leverage AI tools for semantic search (e.g., SciSpace), logical refinement, and efficient reference management (e.g., Zotero), while navigating the evolving landscape of AI ethical guidelines.

本课程旨在培养学生在国际一流期刊发表高水平论文的能力。核心内容涵盖 **IMRAD** 结构、学术语言风格、审稿流程及学术道德。课程重点引入生成式 **AI** (如 **DeepSeek, ChatGPT**) 与提示工程 (**Prompt Engineering**), 教授如何利用 **AI** 工具进行语义化检索 (如 **SciSpace**)、逻辑润色及高效文献管理 (如 **Zotero**), 并深入探讨 **AI** 伦理规约。

9. 课程预期学习成果 **Course Outcomes:** 用数字 1 到 9 列出每一项主要学习成果
 - (1) Communicate scientific concepts clearly, accurately, and concisely in English.
 - (2) Master the conventions, formatting, and citation standards of scientific writing.
 - (3) Critically analyze scientific literature to identify high-quality research outputs.
 - (4) Understand the complete publication lifecycle, from submission to peer review and editorial communication.
 - (5) Master Prompt Engineering to utilize Large Language Models (LLMs) for manuscript drafting and logical refinement.
 - (6) Proficiently use AI-driven research tools (e.g., SciSpace) for semantic literature surveys and information synthesis.
 - (7) Demonstrate a deep understanding of research ethics, defining the boundaries of AI usage to prevent academic misconduct.
 - (8) Develop the professional capacity to deliver oral presentations and engage in scholarly dialogue in international academic settings.
 - (1) 能够清晰、准确且精炼地用英语表达科学概念。
 - (2) 掌握科学写作规范、格式要求及正确的引用方法。
 - (3) 能够批判性地分析科学文献并识别高质量研究成果。
 - (4) 熟悉从投稿到同行评议的完整出版流程及沟通技巧。
 - (5) 掌握提示工程 (**Prompt Engineering**), 能够利用大语言模型 (**LLM**) 辅助文稿构思与润色。
 - (6) 熟练使用 **AI** 驱动的科研工具 (如 **SciSpace**) 进行语义化文献调研与信息合成。
 - (7) 深刻理解学术道德, 能够划定 **AI** 在科研写作中的伦理边界并规避学术不端。
 - (8) 具备在国际学术场景下进行口头报告与学术对话的专业能力。

10. 教学内容与学时分配 **Course Content, Laboratories and Laboratory Hours** (有则填, 没有则不填), **Colloquia Hours** (有则填, 没有则不填): 各章节目录与学时, 实验内容与学时, 研讨内容与学时

(1) Introduction to Scientific and AI Writing (4h): The relationship between science and writing; AI's impact on the publishing industry; Academic keywords and search logic. 科学与写作的关系; AI 对出版业的冲击; 学术关键词与检索逻辑。

(2) Structure and Contents of a Scientific Paper (4h): In-depth analysis of the IMRAD format (Title, Abstract, Introduction, Methods, Results, and Discussion). IMRAD 格式详解 (标题、摘要、引言、方法、结果与讨论)。

(3) Language, Style, and Non-Native Communication (4h): Principles of clarity and conciseness; Active vs. passive voice; Communication challenges for non-native speakers. 简洁与表达逻辑; 主动/被动语态; 非英语母语国家的科研沟通挑战。

(4) The Publication Process and Media (4h): Interactions between authors, reviewers, and editors; Technology and language in media; Pre-submission checklists. 作者、审稿人与编辑的互动; 媒体中的技术与语言; 投稿前的自查清单。

(5) Ethics in Science and AI Usage (4h): Misconduct (plagiarism, fabrication); AI ethical boundaries; Latest AIGC regulations from top-tier journals. 学术不端 (剽窃、造假); AI 伦理边界; 国际顶刊对 AIGC 的最新规约。

(6) AI in Academic Writing: Tools and Techniques (4h): Hands-on Prompt Engineering; Application of LLMs (Claude, Perplexity); AI-assisted literature retrieval and typesetting. 提示工程实战; 大语言模型 (Claude, Perplexity) 应用; AI 文献检索与排版。

(7) Tutorial & Hands-on Group Work (4h): Faculty-guided practice in AI-collaborative writing; Group project planning. 导师指导下的 AI 协作写作实操; 小组项目规划。

(8) Final Presentations & Feedback (4h): Group presentations, interactive discussions, and concluding feedback. 小组成果展示、互动讨论与结业反馈。

11. 考核与成绩评定 **Grading:**

Attendance & Participation (出勤与课堂参与): 20%

AI Tool Practice/Homework (AI 工具实操/作业): 20%

Group Presentation (小组展示): 60%

12. 教材, 参考书 **Text & Reference Book:** 作者, 书名, 版本, 年份, 国际标准书号 ISBN

Bengt Lundberg's Lectures & Course Packs;

Nature/Science guidelines on AI usage;

Zotero & Overleaf Documentation.

13. 编写教师 **Course Lecturer:**

Bengt Lundberg, 张腾 (Teng Zhang)