

Global Environmental & Climate Change

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Course website:

<http://www.pku-atmos-acm.org/acmCourse.php#Environment>



Goals

- **Introduce basic scientific facts concerning atmospheric environment and climate change**
- **Discuss frontier topics in atmospheric chemistry and climate change research**
- **Stimulate interests in solving environmental problems such as air pollution, acid deposition and climate change**

Main Contents

- **Introduction – global environmental challenges**
- **Earth system & global cycling of key elements**
- **Earth measurements and modeling**
- **Global and regional environment**
 - **Stratospheric ozone hole, tropospheric ozone, aerosols, acid deposition**
 - **Regional and global transport**
 - **Emission estimate and control**
- **Climate and climate change**
 - **Climate system, climate forcing**
 - **Past and future climate change, climate mitigation**
- **Looking beyond**

Requirements and Scoring (成绩)

- Attendance: **10%**
- In-class performance: **20%**, including questions, quiz, discussion
- Term paper: **Literature review. 50%** (5000-6000 words; ≥ 10 references; following journal paper structure)
- Final presentation: **20%** (following seminar structure)
- Individual requests to change scores are discouraged and will not succeed in principle

More on Term Paper and Presentation

- Each group (**2-3 students**) works on a topic or project.
Discuss with me – very important!
- Each presentation takes 25 mins plus 25 mins for questions & discussion; will spend 2-3 weeks at the end of the semester for presentation
- **Deadline for topic selection: November 19**
- **Deadline for paper & ppt submission: December 24**
- Structure of paper/ppt: introduction/background, main content, conclusion/discussion
- Scoring of paper/ppt: scientific content, presentation, novelty, timing, group collaboration, taking questions;
please explain contributions of each group member, for separate scoring, at the beginning of your ppts and papers!
- Title of paper & ppt: **GECC_第X题_姓名+姓名...**

About Plagiarism (作弊、剽窃)

- **No tolerance!**
- **Forms of plagiarism: citing without reference, quoting without “” sign, too much quoting, etc.**
- **Punishment: fail the class, zero score, departmental/institutional actions, depending on the severity of plagiarism.**
- **Consult with me BEFORE submission deadline if you have ANY concern !**

References (参考文献)

- **Introduction to Atmospheric Chemistry, by Daniel Jacob (Introductory materials)**
<http://acmg.seas.harvard.edu/people/faculty/djj/book/>
- **Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, by John H. Seinfeld and Spyros N. Pandis (More advanced materials; available at the department library; ask our secretary)**
- **HTAP: Hemispheric transport of air pollution 2010 Part A: Ozone and particulate matter, Economic Commission for Europe, Geneva, 2010,**
http://www.htap.org/publications/2010_report/2010_Final_Report/HTAP%202010%20Part%20A%20110407.pdf
- **IPCC reports: AR5 (<http://www.ipcc.ch/>)**

Contact & Office Hour

- **Office: M-502 (中502) , Building of Physics**
- **Email: linjt@pku.edu.cn**
- **Tel: 62767973**
- **Office hour: by reservation**
- **Course website:**
<http://www.pku-atmos-acm.org/acmCourse.php#Environment>

建立微信群

上课请关闭手机、计算机!

Please fill in course evaluation form!

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全球环境与气候变迁

气候物理化学

全球化大气污染

• 本科生课程

• 研究生课程

本科生课程:

全球环境与气候变迁

(2学分; 选修; 秋季)

本课程主要介绍与全球大气环境和气候变化相关的基本科学知识, 探讨该领域的最新进展、热点和难点, 激发学生参与解决环境问题的积极性。内容涉及污染物、生物、地球化学循环、臭氧空洞、近地面臭氧和气溶胶污染、酸沉降、污染源解析、污染控制、气候变化、气候预测、气候变化应对措施等。欢迎各位同学选修!

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课程资源

- Course introduction, requirements, scoring, etc. ([slide](#))
- Term paper topics ([slide](#)) An exemplary review paper ([pdf](#))
- Chapter 1: Introduction: The changing environment ([slide](#))
- Chapter 2: Earth system & global biogeochemical cycling ([slide](#))
- Chapter 3: Earth measurements and modeling ([slide](#))
- Chapter 4: Stratospheric ozone depletion ([slide](#))
- Chapter 5: Tropospheric chemistry and air pollution ([slide](#))
- Chapter 6: Regional and global transport of air pollutants, and air pollution control ([slide](#))
- Chapter 7: Climate system ([slide](#))
- Chapter 8: Climate change, forcings and feedbacks ([slide](#))

