

## Syllabus: MAE 124/ESYS 103 The Human Earth

Prof. Sarah Gille

*Lectures:* Monday/Wednesday/Friday 1:00-1:50, Pepper Canyon 122  
Friday 2:00-2:50, York 2622 (unless otherwise specified)

*Professor's office hours:* EBUII 568 Monday after class from 2:00 until 3:30. I'm also available in the classroom, before and after class, or by e-mail.

*SIO Office:* Nierenberg Hall 348 (e-mail or call for an appointment)

*Telephone:* 822-4425 *e-mail:* sgille@ucsd.edu

*TA:* Robb Kulin *e-mail:* rkulin@ucsd.edu

No scheduled office hours at present. Contact for an appointment.

*Course website:* <http://www-pord.ucsd.edu/~sgille/mae124>

*Objectives:* This is a course in environmental sustainability and sustainable development. We will examine environmental challenges including pollution, water resources, energy, global warming, population and land degradation. Then we will focus on strategies for addressing these challenges, through government intervention, industrial activity, design, and planning. The course aims to show that it is essential to understand, quantify and embed the environmental dimension (in its broadest sense) at every stage of consideration of industrial and economic activity. We focus on fundamental issues rather than detailed technical and scientific analysis. Lectures, in-class discussion, term papers and exams will ask you to think and synthesize material.

Specifically, by the end of the course, you should understand, and be able to discuss:

- the major environmental problems that need to be addressed to ensure sustainable development;
- the central roles played by market forces, technological innovation and governmental intervention;
- engineering and design approaches to take into account, and minimize the environmental impacts of industrial activity;
- environmental aspects of specific industrial sectors, such as energy, transport, land and water use, and the built environment.

*Academic Integrity:* This course will adhere to the standard UCSD policy on academic integrity: "Students are expected to do their own work, as outlined in the UCSD Policy on Integrity of Scholarship. Cheating will not be tolerated, and any student who engages in forbidden conduct will be subjected to the disciplinary process. Cheaters will receive a failing grade on the assignment or the exam and/or in the entire course. They may also be suspended from UCSD." See <http://www-senate.ucsd.edu/manual/Appendices/app2.htm> for details.

*Reading:*

- Brown, Lester R. *Plan B 3.0: Mobilizing to Save Civilization*. (2008) Norton
- Additional reading will be made available in electronic form. (This may include articles from books or print media.)

*Grading:*

- 20% paper 1. (4-6 pages: assigned April 7; outline due April 16; draft due April 21; peer evaluation due April 23; final draft due April 29)
- 30% paper 2. (8-10 pages, assigned May 19; abstract and outline due May 30; final draft due June 5)
- 10% participation/quizzes.
- 15% midterm (Friday May 2, in class at 2 pm)
- 25% final exam (Thursday June 12, 11:30 am-2:30 pm)
- Late assignments will not be accepted.

*Schedule Highlights. (See web for full details and reading assignments.)*

*Part I: Challenges for the Human Earth*

- **Week 1:** Introduction (Tragedy of the Commons, Air Pollution).
  - Friday, April 4: (2 pm) *Guest lecture:* Paul Dayton on “Fisheries and the Tragedy of the Commons”
- **Week 2:** Water resources.
  - Friday, April 11: (2 pm) *Guest lecture:* Dan Cayan, “Water in California”
- **Week 3:** Energy.
  - Friday, April 18: (2 pm) *Guest lecture:* Richard Somerville, “Climate Change”
- **Week 4:** Global Warming and Climate Change.
  - Friday, April 25: (2 pm) *Guest lecture:* Ralph Keeling, “Carbon Cycle”
- **Week 5:** Population, Agriculture, Land Degradation.
  - Friday, May 2: (2 pm) MIDTERM exam

*Part II: Sustainability*

- **Week 6:** Strategies for Sustainability.
  - Friday, May 9: (2 pm) *Guest lecture:* Paul Linden, “Green Buildings”.
- **Week 7:** Land Use and Urban Planning.

— Friday, May 16: “Field Trip” Birch Aquarium at Scripps

• **Week 8:** Energy and Climate Change.

— Friday, May 23: (2 pm) *Guest lecture:* Kristin Blacker and Kim McIntyre, “Sustainability at UCSD”.

• **Week 9:** Transportation.

— Monday, May 26: NO CLASS. MEMORIAL DAY.

— Friday, May 30: (2 pm) *Guest lecture:* Brian d’Autremont, “Parking and Public Transportation at UCSD”

• **Week 10:** Balancing Population with Food and Water Resources.

— Friday, June 7: (2 pm) Final Exam Review Session