

SIO 40: “Life and Climate on Earth” (Fall 2016)

Description: This course is an introduction to how the living things on our planet affect, and are affected by, the global environment. We will discuss how life evolved on earth, and how the planet changed with the advent of life. We will explore how the non-living components of the earth system (atmosphere, solid earth, water) interact with the living components to create the comfortable planet that we know and love. In the second part of the course, we will discuss issues related to global climate change, and the potential impacts that mankind has had and will have on our environment. A major goal of this course is to provide non-earth/environmental science majors with the basic scientific background and facts needed to understand and appreciate current news topics and political issues related to earth and climate science.

Course website: Material for this course, including the course syllabus, lecture files, homework assignments and answer keys, etc. will be available on the SIO 40 course website on TritonEd at triton.ed.ucsd.edu.

Grades based on: 8 best out of 9 homework assignments (25%); Mid-Term Exam #1 (20%); Mid-Term Exam #2 (20%); and Final Exam (35%). Grades will be assigned using a curve system. Attendance and active participation in class is noted and will make a positive difference for marginal grades. There will be opportunities to obtain extra credit, more details TBA.

Reading: There are *no required textbooks* for this course. Necessary information for homeworks, exams etc. is covered in the lecture slides posted on line, unless you are specifically instructed otherwise. Supplementary reading materials and links to websites relevant to various lecture topics will also be posted on the class website. A copy of the book “Dire Predictions” (2nd edition) will also be available in Galbraith 364 for background reading.

Academic Integrity: Students found guilty of “cut and paste plagiarism” on homework assignments (ie. copying text verbatim from my slides, the TA’s, other students, websites, etc.) will receive a warning the first time. If students are found to be copying again, copied answers will receive zero credit.

Locations and times: Center Hall Room 105, MWF 11:00 -11:50 am
TA-led on line chat sessions and extra review sessions: TBA
Instructor office hours on campus (Galbraith Hall Rm 364, Weds noon-2pm) and by appointment at Scripps Institution of Oceanography campus.

Contact info: Instructor - Kathy Barbeau, kbarbeau@ucsd.edu, 858-822-4339
Teaching Assistants – Lauren Manck, lmanck@ucsd.edu
Christy Liang, yfloo1@ucsd.edu

Lecture list and homework assignments:

<u>Date</u>	<u>Lec #</u>	<u>Lecture Topic</u>	<u>HW due date</u>
Sep. 23 F	1	Introduction/overview	
Sep. 26 M	2	Basic concepts	
Sep. 28 W	3	Origins: Planetary evolution	
Sep. 30 F	4	Origins: Biological evolution	HW1
Oct. 3 M	5	Life's Beginnings: How the planet changed with life I	
Oct. 5 W	6	Life's Beginnings: How the planet changed with life II	
Oct. 7 F	7	Energy balance and greenhouse effect	HW2
Oct. 10 M	8	Atmosphere and hydrologic cycle	
Oct. 12 W		Review	HW3
Oct. 14 F		MID-TERM #1	
Oct. 17 M	9	Oceans	
Oct. 19 W	10	Cryosphere	
Oct. 21 F	11	Lithosphere	
Oct. 24 M	12	Carbon cycle	HW4
Oct. 26 W	13	Long-term climate record	
Oct. 28 F	14	Glaciations	
Oct. 31 M	15	Recent climate	HW5
Nov. 2 W	16	Climate change basics	
Nov. 4 F		Review	HW6
Nov. 7 M		MID-TERM #2	
Nov. 9 W	17	Climate change projections	
Nov. 11 F		VETERAN'S DAY HOLIDAY	
Nov. 14 M	18	Impacts of climate change	
Nov. 16 W	19	Ocean acidification and warming	
Nov. 18 F	20	Climate change happening now: The Arctic	HW7
Nov. 21 M	21	Climate change skepticism	
Nov. 23 W	22	The ozone hole	
Nov. 25 F		THANKSGIVING HOLIDAY	
Nov. 28 M	23	Mitigating climate change I: Geo-engineering	HW8
Nov. 30 W	24	Mitigating climate change II: Reducing emissions	
Dec. 2 F		Review	HW9
Dec. 6 Tu		FINAL EXAM, 11:30 am	