



SAINT LOUIS UNIVERSITY
MADRID

EAS 1030 M01: Earth's Dynamic Environment II
(Atmosphere and Oceans)

Fall 2017

Class Days and Time: TR 14:30-15:45h

Classroom: SIH A

Prerequisite(s): None. *Meets natural science requirements, A&S/B&A, core requirement, environmental science.*

Credit(s): 3

Instructor: Ivan A. Sánchez Ph.D

Instructor's Email: ivan.sanchez@slu.edu

Instructor's Campus Phone: 91 554 58 58, ext. 266

Office: PAH-202

Office Hours: Thursday, 13:20-14:20h

Course Description: This course covers the interactions between land, water, air, and life with special emphasis on humans and the environment. The course focuses on the oceans and atmosphere.

Course Goals and Student Learning Outcomes: At the end of the course, students will:

- Understand the planet earth as a dynamic system and the interactions of the different components.
- Possess the thinking skills and ability to understand the different components of the Earth system and link them with the current environmental problems.
- Have the interpretative capacity to include the meaning of new data and news that science provides in the context of Earth Sciences
- Be acquainted with the influence of the sun and other objects of our solar system on the Earth.
- Achieve a solid foundation on the structure and dynamics of the Atmosphere and Oceans and their mutual interactions, including global winds and ocean currents.
- Understand the basic principles of weather forecasting and the influence in society of certain oscillations such as the "El Niño" phenomenon.
- Know the basic physical processes and importance of the coastal environment.
- Be able to think critically on Earth's energy balance and its influence in the current rate of climate change.

PLOs	Student Learning Outcomes	Assessment Method
A	A.1. Know the basic concept of the Earth Spheres and its usefulness to understand the Earth System. A.2. Know the different theories about the origins of the Earth System and the importance of the magnetic field. A.3. Understand the physical structure of the atmosphere including the different occurring phenomena, particularly the reasons for the changes in temperature. A.4. Understand the physical structure of the oceans including salinity, ph, temperatures, luminosity and productivity	- Mid-term and final exam. - Class participation. - Homework assignments. - Written paper.

	<p>A.5. Be able to understand a weather forecast chart and how it is nowadays done.</p> <p>A.6. Possess the capacity of linking pressure systems to the global and local air circulation and other processes of the atmosphere dynamics. This includes an understanding of the role of ozone in the atmosphere.</p> <p>A.7. Apply the basic knowledge on the dynamics of the oceans to an improved understanding of the “El Niño” phenomena.</p> <p>A.8. Understand the basic coastal processes and the different interactions between the oceans and the atmosphere.</p> <p>A.9. Be able to relate the different factors involved in climate change applying the previous background information.</p> <p>A.10. Understand other changing phenomena related to the global climate change such as storms and hurricanes.</p>	<ul style="list-style-type: none"> - Oral presentations.
B	<p>B.1. Be acquainted with the recent news related with the issues dealt within the class.</p> <p>B.2. Understand the implications of phenomena such as “El Niño” or the changes in the ozone layer within the context of the societal implications.</p> <p>B.3. Possess the thinking skills and ability to skip popular views and understand climate change from a scientific and applied point of view, including the consequences for the future of the planet.</p>	<ul style="list-style-type: none"> - Class participation. - Homework assignments. - Written paper. - Oral presentations.
C	<p>C.1. Elaborate a model of a Micro-, Meso- or Macro-cosms that reflects the interactions between the different spheres of planet earth.</p> <p>C.2. Understand and apply the basic numbers of the Earth’s Energy Balance.</p> <p>C.3. Be able to include new data within the theoretical information that is covered during the class.</p>	<ul style="list-style-type: none"> - Class participation. - Homework assignments. - Written paper. - Exams. - Oral presentations.

Saint Louis University - Madrid Campus is committed to excellent and innovative educational practices. In order to maintain quality academic offerings and to conform to relevant accreditation requirements, the Campus regularly assesses its teaching, services, and programs for evidence of student learning outcomes achievement. For this purpose anonymized representative examples of student work from all courses and programs is kept on file, such as assignments, papers, exams, portfolios, and results from student surveys, focus groups, and reflective exercises. *Thus, copies of student work for this course, including written assignments, in-class exercises, and exams may be kept on file for institutional research, assessment and accreditation purposes.* If students prefer that Saint Louis University - Madrid Campus does not keep their work on file, they need to communicate their decision in writing to the professor.

Required Texts and Materials: - Strahler A.N. 2013 Introduction to Physical Geography. John Wiley & Sons.
E-book provided by the Instructor

Other recommended books

- Holden, J. 2012. An Introduction to Physical Geography and the Environment. Pearson.
- Lovelock, J. 2000. The Ages of Gaia: A Biography of Our Living Earth. Oxford University Press
- Barry, G.B. & Chorley, R.J. 1992: Atmosphere, Weather & Climate. New York; 392.
- Thurman, H.V. and Burton, E.A. Introductory oceanography. Prentice Hall.
- Lutgens, F.K. The Atmosphere: An Introduction to Meteorology. Prentice Hall
- Trefil, J. 2005. A Scientist at the Seashore. Dover Science Books.

Attendance Policy:

- (1) Students are encouraged to participate in class discussions and to ask questions. Announcements may be made during the semester.
- (2) Announcements may be made during the semester
- (3) It is strictly forbidden to use the mobile phone during class. Anyone using or showing them in the classroom will be asked to give it to the professor that will keep it in the professor’s table until the end of the class session or, in some cases, the professor will ask the student to leave the classroom with for the rest of the session.
- (4) Syllabus, reading and paper topics are subject to change
- (5) Students are responsible for all lecture material, handouts, homework and assigned reading

(6) It is mandatory to attend all classes unless a reasonable excuse is given. More than two unjustified absences will decrease the grade on participation.

Reasonable excuses are attendance at excursions or other special events of the SLU, illness or family emergency. In cases of illness or family emergency, a written documentation of the circumstances must be given. A letter from the university counsellor is accepted. In these cases, the student has to remember to ask the professor to sign for the excuse in the attendance roster.

(7) Make up exams are not given. Students who legitimately miss an exam, due to a doctor's visit or family emergency must provide written documentation of the circumstances. A letter from the university counsellor is accepted. Exams that are missed illegitimately result in a score of F. Grades for these students will be based on the remaining exams.

(8) The order and number of the topics given on the calendar are subject to change. More topics than the possibility of covering them are given in the calendar. According to the circumstances of the course or the current news on environmental issues the professor will choose the most suitable topics for a better and up-to-date development of the course.

Here is a list of topics:

Introduction: The Earth Spheres.
Origins of the Earth System and Magnetic field
The Atmosphere
Earth's Energy Balance
The Oceans
Weather forecast
The Atmosphere Circulation
The Oceans Circulation and "El Niño"
Climate Change
Coastal Processes & Ocean-Atmosphere Interactions
Storms, hurricanes and other phenomena

(9) No food or drink (except water) in class is allowed.

(10) All students have to be punctual. Repeated cases of lateness may reduce the grading for "homework and participation in class". Late arrivals to class are considered up to 10 minutes. Students who arrive 15 minutes or more after the beginning of class will be considered as having missed that class.

(11) Students are expected to remain in the classroom throughout the class meeting, except for reasonable emergencies. Chronic lateness will significantly reduce the attendance portion of the student's grade.

(12) Students have to attend all classes unless a reasonable excuse is given. Reasonable excuses are attendance at excursions or other special events of the SLU, illness or family emergency. In cases of illness or family emergency, a written documentation of the circumstances must be given. A letter from the university counselor is accepted. Repeated missing of the class without a reasonable excuse may reduce the grading for "homework and participation in class". Students, which are missing more than three times the class without a reasonable excuse, are not allowed to attend the examinations.

Furthermore, they will lose all points for "homework and participation in class".

(13) Useful and important information for the course will be given in Blackboard.

This information includes: PowerPoint-Presentations and notes shown in class, readings, supplementary study material, further information about the elaboration of the research work or presentations, grades of exams and paper.

To communicate with the students, the professor will use Blackboard, e-mail. Consequently, it is necessary, that the students check their Blackboard-email.

(14) Students with accredited accommodations for exams need to communicate them to the professor at least 14 days before the mid-term or final dates.

(15) Final research paper: due on the date of the last programmed oral presentation.

(16) During exams it is not allowed to go out of the classroom, so it is recommended to go to the toilet right before exams and to bring water and an extra pen.

(17) E-mails are answered from Monday 12:00h to Friday a 12:00h

(18) Exams include all the material covered in the classroom.

Course Requirements and Grading Rationale/System:

The grade will be obtained from the following areas:

Mid-term I: 25%

Final: 25%

Paper and presentation: 25%

Homework, attendance and class participation: 25%

A: 93-100%

A-: 90-92.9%

B+: 87-89.9%

B: 83-86.9%

B-: 80-82.9%

C+: 77-79.9%

C: 73-76.9%

C-: 70-73.9%

D: 60-69.9%

F: 00-59.9%

Papers: Every student/group has/have to prepare a paper about a specific topic. The professor will give an indicative list of topics. However, this list is only to orientate what type of topics are suitable for the research and the student is also encouraged to suggest her/his own topics (always related to the course).

Papers will be presented orally at the end of the course. Detailed information about the paper will be given in a separate document (posted in Blackboard). Together with every paper a PowerPoint-Presentation has to be presented and submitted. Delivery of research papers or any other course work will not be accepted by email. This PowerPoint-Presentation will be the basis of the oral presentation at the end of the course. The deadline for the submission will be given during the course, though it often coincides with the date of the last presentation (after the deadline the paper is only accepted if a reasonable excuse is given; reasonable excuses, due to an illness or family emergency, must provide written documentation of the circumstances; a letter from the university counselor is accepted). The recommended presentation is APA, without page numbers in citations, 1.5 spaced, Times New Roman 11. However, web citations should include date of access and the rest of relevant information. The paper should also include sections an index and page numbers.

Homework: Instructions will be given in Blackboard documents and the first day of classes on how to elaborate homework.

E-mail: Campus and course announcements will often be handled by e-mail. Students should check their "@slu.edu" e-mail regularly.

University Statement on Academic Integrity: Academic integrity is honest, truthful and responsible conduct in all academic endeavors. The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care and community service via which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.

The governing University-level Academic Integrity Policy can be accessed on the Provost's Office [website](#). Additionally, SLU-Madrid has posted its academic integrity policy online: <http://www.slu.edu/madrid/academics>. As a member of the University community, you are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions and appeals.

The professor will review these matters during the first weeks of the term. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program or the Academic Dean of the Madrid Campus.

University Title IX Statement: Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the University. If you speak with a faculty member about an incident of misconduct, that faculty member must notify SLU's Title IX deputy coordinator, Marta Maruri, whose office is located on the ground floor of Padre Rubio Hall, Avenida del Valle, 28 (mmaruri@slu.edu; 915-54-5858, ext. 213) and share the basic fact of your experience with her. The Title IX deputy coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

If you wish to speak with a confidential source, you may contact the counselors at the SLU-Madrid's Counseling Services on the third floor of San Ignacio Hall (counselingcenter-madrid@slu.edu; 915-54-5858, ext. 230) or Sinews Multiplettherapy Institute, the off-campus provider of counseling services for SLU-Madrid (www.sinews.es; 917-00-1979). To view SLU-Madrid's sexual misconduct policy and for resources, please visit the following web address: <http://www.slu.edu/Documents/Madrid/campus-life/SLUMadridSexualMisconductPolicy.pdf>.

Students with Special Needs: In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. Students who think they might benefit from these resources can find out more about:

- Course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor.
- University-level support (e.g., tutoring/writing services, Disability Services) by visiting the Academic Dean's Office (San Ignacio Hall) or by going to <https://www.slu.edu/madrid/academics/student-resources>.

Students with a documented disability who wish to request academic accommodations must contact Disability Services to discuss accommodation requests and eligibility requirements. Once successfully registered, the student also must notify the course instructor that they wish to access accommodations in the course. Please contact Disability Services at disabilityservices-madrid@slu.edu or +915 54 58 58, ext. 230 for an appointment. Confidentiality will be observed in all inquiries. Once approved, information about the student's eligibility for academic accommodations will be shared with course instructors via email from Disability Services. For more information about academic accommodations, see "Student Resources" on the SLU-Madrid webpage.

Note: Students who do not have a documented disability but who think they may have one are encouraged to contact Disability Services.

Fall 2017 Course Schedule:

Monday, September 4	
Tuesday, September 5	Introductory Class
Wednesday, September 6	
Thursday, September 7	Introduction: The Earth Spheres
Friday, September 8	
Saturday, September 9	
Sunday, September 10	
Monday, September 11	
Tuesday, September 12	Introduction: The Earth Spheres
Wednesday, September 13	
Thursday, September 14	Origins of the Earth System and Magnetic field
Friday, September 15	
Saturday, September 16	
Sunday, September 17	Last Day to Drop a Class Without a Grade of W and /or Add a Class, choose Audit (AU) or Satisfactory/Unsatisfactory (S/U) Options
Monday, September 18	
Tuesday, September 19	Origins of the Earth System and Magnetic field

Wednesday, September 20	
Thursday, September 21	The Atmosphere
Friday, September 22	
Saturday, September 23	
Sunday, September 24	
Monday, September 25	
Tuesday, September 26	The Atmosphere
Wednesday, September 27	
Thursday, September 28	Earth's Energy Balance
Friday, September 29	
Saturday, September 30	
Sunday, October 1	
Monday, October 2	
Tuesday, October 3	The Oceans
Wednesday, October 4	
Thursday, October 5	The Oceans and Mid-term review
Friday, October 6	
Saturday, October 7	
Sunday, October 8	
Monday, October 9	
Tuesday, October 10	Mid-term 14:30-15:45
Wednesday, October 11	
Thursday, October 12	Fall Break
Friday, October 13	
Saturday, October 14	
Sunday, October 15	
Monday, October 16	
Tuesday, October 17	The Oceans
Wednesday, October 18	
Thursday, October 19	Midterm Grades Due.
Friday, October 20	
Saturday, October 21	
Sunday, October 22	
Monday, October 23	
Tuesday, October 24	Weather forecast
Wednesday, October 25	
Thursday, October 26	Weather forecast
Friday, October 27	
Saturday, October 28	
Sunday, October 29	
Monday, October 30	Last Day to Drop a Class and Receive the Grade of W.
Tuesday, October 31	The Atmosphere Circulation
Wednesday, November 1	University Closed
Thursday, November 2	Spring Registration Opens!
Friday, November 3	
Saturday, November 4	
Sunday, November 5	
Monday, November 6	
Tuesday, November 7	The Atmosphere Circulation
Wednesday, November 8	
Thursday, November 9	University Closed

Friday, November 10	
Saturday, November 11	
Sunday, November 12	
Monday, November 13	
Tuesday, November 14	The Oceans Circulation and "El Niño"
Wednesday, November 15	
Thursday, November 16	Climate Change
Friday, November 17	
Saturday, November 18	
Sunday, November 19	
Monday, November 20	
Tuesday, November 21	Climate Change
Wednesday, November 22	
Thursday, November 23	Coastal Processes & Ocean-Atmosphere Interactions
Friday, November 24	
Saturday, November 25	
Sunday, November 26	
Monday, November 27	
Tuesday, November 28	Students Presentations
Wednesday, November 29	
Thursday, November 30	Students Presentations
Friday, December 1	
Saturday, December 2	
Sunday, December 3	
Monday, December 4	
Tuesday, December 5	Students Presentations - Research Paper Due
Wednesday, December 6	University Closed
Thursday, December 7	Storms, hurricanes and other phenomena
Friday, December 8	University Closed
Saturday, December 9	
Sunday, December 10	
Monday, December 11	
Tuesday, December 12	Review Class: Preparation for the final
Wednesday, December 13	
Thursday, December 14	
Friday, December 15	
Saturday, December 16	
Sunday, December 17	
Monday, December 18	Final Exam 12:00-14:00h Midyear Commencement!
Tuesday, December 19	
Wednesday, December 20	
Saturday, December 23	Grades Due to Registrar