

Course 460 303: Paleontology

Instructor: Marie-Pierre Aubry, Professor, Department of Earth and Planetary Sciences
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Time: Monday, Thursday: 9.00–12.00 (double period, with a 20 mn break at ~ 10.20). Lecture and practical classes will be held consecutively, each being approximately 1 h 40 mn.

Prior to the first class, electronic invites will be sent to registered students.

“Office hours” will be by appointment only via e-mail [aubry@eps.rutgers.edu or sdyl0@eps.rutgers.edu]

Class format: Classes will be held virtually on Zoom until January 31st, or another date determined by Rutgers administration, due to the global pandemic. Afterwards, the course will follow a hybrid format in Wright-Rieman Laboratories Room 231. Students are highly encouraged to attend the lecture in person, and the practical exercises will require in person participation. However, if you have any symptoms related to COVID-19 or suspect potential contact, please participate virtually.

Objectives: The course aims at giving students a solid understanding of the diversity of life on Earth through time, and of the processes that have made this diversification possible. We will learn of the remains of extinct organisms (fossils) through the magnifying glass of the present life on the planet. We will examine evolutionary processes to understand the role of mass extinctions and evolutionary radiations in shaping the diversity of life between geological eras. And we will wonder which organisms lived at the same time and where they lived. This course, based on the principle that the present is a key to the past, is an invitation to stimulate your imagination to recreate lost worlds and to understand the roots of today’s diversity of life. The pandemic situation permitting, you will be given samples of rocks to “pick” tiny shells of marine organisms, and larger fossils to examine.

Requirements: Participation in discussions and hands-on activities are efficient ways towards understanding the content of a course, even when delivered online. At the beginning of each lecture, students will be presented with a short list of questions that will be collectively answered at the end the lecture. Also, each lecture will end with a list of questions to be addressed at the very beginning of the next session, and which will help students study between classes. You will be asked to participate in an effort which consists in establishing a panorama of life, and each of student will present his contribution at the end of the semester. This course covers quite a lot of material, and we recommend that you keep up with its content on a regular basis.

Resources

a- All power point presentations upon which lectures are based will be available in pdf form. You are strongly encouraged to refer to them as their content represents synthesis from many different sources

b- Reading: There are many books dealing with Paleontology.

We adopt here:

Digital Atlas of Ancient Life.

<https://www.digitalatlasofancientlife.org/learn/nature-fossil-record/>

c- Other suggestions are:

Michael J. Benton, M. J. and David A. T. Harper, D. A. T., 2009. *Introduction to Paleobiology and the Fossil Record*. 1st edition, Wiley-Blackwell, 392 pp.

Foote, M. & Miller, A.I., 2007. *Principles of Paleontology*, 3rd Edition. W.H. Freeman & Co. New York, 354 pp.

Milsom, C. & Rigby, S. 2010. *Fossils at a Glance*, 2nd Edition, Wiley-Blackwell, 159 pp.

Grades

The final grade will be based on:

One written exam, in mid- November 40%

Scrolls and book of life 50%

Participation in class 10%

The final grade will be delivered after meeting with each student for discussion of their presentation and general discussion of their achievements.

Class schedule

Class	Date	Subject
1	(Th) 01-20-2022	Introductions, definition of Paleontology
2	(M) 01-24-2022	Fossilization
3	(Th) 01-27-2022	Taxonomic framework and concepts
4	(M) 01-31-2022	Stratigraphy
5	(Th) 02-3-2022	Chronostratigraphy & Geochronology
6	(M) 02-7-2022	Naked unicellular
7	(Th) 02-10-2022	Shelled Protists
8	(M) 02-14-2022	Shelled Protists
9	(Th) 02-17-2022	Invertebrates: Porifera
10	(M) 02-21-2022	Invertebrates: Cnidaria
11	(Th) 02-24-2022	Invertebrates: Arthropoda
12	(M) 02-28-2022	Invertebrates: Mollusca
13	(Th) 03-3-2022	Invertebrates: Mollusca
14	(M) 03-7-2022	Invertebrates: Brachiopoda & Bryozoa
15	(Th) 03-10-2022	Invertebrates: Echinodermata
Spring recess (no class)	(M) 03-14-2022	
Spring recess (no class)	(Th) 03-17-2022	
16	(M) 03-21-2022	Invertebrates: Echinodermata
17	(Th) 03-24-2022	Chordata
18	(M) 03-28-2022	Chordata
19	(Th) 03-31-2022	Higher Plants
20	(M) 04-4-2022	Marine and terrestrial communities
21	(Th) 04-7-2022	Rock builders & Explorers
22	(M) 04-11-2022	Fossils and geochemistry (Guest Lecture)
23	(Th) 04-14-2022	Biostratigraphy
24	(M) 04-18-2022	Evolutionary patterns
25	(Th) 04-21-2022	Evolutionary patterns
26	(M) 04-25- 2022	Synthesis and conclusions
27	(Th) 04-28-2022	Student Presentations
28	(M) 05-02-2022	Student Presentations

Policy on Classroom Etiquette Department of Earth and Planetary Sciences, Rutgers University, The State University of New Jersey, Piscataway, NJ

The Department of Earth and Planetary Sciences is committed to teaching excellence, fostering close interaction between students and faculty in our 300- and 400-level courses. While recognizing that large lecture classes are required to serve the demand for 100- and 200-level introductory course, we have decided to avoid offering courses large than 140 students whenever practicable. At all levels, we demand that instructors (Professors, Lecturers, and Teaching Assistants) AND students display appropriate respect and consideration for each other. Instructors should try to infuse students with an enthusiastic appreciation of Earth and Planetary Sciences, be well prepared for class, provide students with clear goals and expectations, listen carefully to student questions and comments, and conscientiously evaluate students' work. Students are expected to attend the scheduled classes and to behave courteously in class. Together, instructors and students will maintain an environment of openness and civility that encourages and honors the intellectual achievement represented by the discipline of Earth and Planetary Sciences. We outline the following rules on exams, attendance, tardiness/leaving early, and integrity.

Attendance: Students are expected to attend class; attendance is one of the best prognosticators of a student's performance. If a student cannot attend a class or must leave early, he/she should inform the instructor and ask to be excused. Instructors may require signed attendance sheets and may count attendance as part of the grade. Falsification of an attendance record by signing another student's name or signing and then leaving class is a serious breach of academic integrity.

Tardiness and Leaving Class Early: Our university is geographically challenged. Students must commute considerable distances between classes and instructors are aware of problems that students encounter in trying to come to class on time. We recognize that some tardiness is inevitable; HOWEVER, habitually arriving in class late and departing early is disruptive and rude. We ask that once you make every effort possible to get to class on time, and once there, STAY.

Personal Conversation: It is rude and disruptive to engage in personal conversation during class. Students who persist in this disruptive behavior may be asked to leave the class and may be penalized as absent. Refusal to leave class once requested will result in disciplinary action at the Dean's level. **Cell phones should be turned off in class.**

Academic Integrity: Our department fully endorses a no-tolerance cheating and plagiarism policy. If you are caught cheating, the instructor may fail you and request disciplinary action.

Your Rights: We are all human and instructors and students both make mistakes. If you feel that you have been treated unfairly, contact the department chair Dr. James D. Wright jdwright@eps.rutgers.edu

Student Resources

Active Shooter Resources: <http://rupd.rutgers.edu/shooter.php>

Just In Case Web App <http://codu.co/cee05e>

Access mental health information and resources for yourself or a friend in a mental health crisis, includes resources to easily contact CAPS or RUPD (*as of 9/14/18, it is just a link to 911)

Counseling, ADAP & Psychiatric Services (CAPS) <http://health.rutgers.edu/medical-counseling-services/counseling/>

(848) 932-7884 | 17 Senior Street, New Brunswick, NJ 08901

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA) www.vpva.rutgers.edu/

(848) 932-1181

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Scarlet Listeners, Peer Counseling and Referral Hotline (732) 247-5555

Scarlet Listeners is a free & confidential student run peer counseling and referral hotline based out of Rutgers. Basic problem solving, venting, thoughts of suicide, depression, anxiety, eating disorders, self harm, relationship problems, loneliness, etc.

Office of Disability Services <https://ods.rutgers.edu/>

(848) 445-6800 | Lucy Stone Hall, Suite A145, Livingston Campus

Rutgers University welcomes students with disabilities into all of the University's educational programs. Any student with a documented disability may contact the Office of Disability Services to determine the appropriate accommodations. Students with disabilities requesting accommodations must follow the procedures outlined at <https://ods.rutgers.edu>.