



MINISTERIO
DE ECONOMÍA, INDUSTRIA
Y COMPETITIVIDAD



ThermoFisher
SCIENTIFIC

3rd STABLE ISOTOPE COURSE IN ECOLOGY AND ENVIRONMENTAL SCIENCES

ROOM 1: Plenary Room. Ground Floor EBD

ROOM 2: LIE Lab. Ground Floor EBD

ROOM 3: Plenary Room in the Bolín RBD

12th to 16th November 2018

Monday, 12 Nov

9:30 - 10:00	Welcome opening at EBD, registration and presentation of participants
10:00 - 11:30	Room 1 General introduction about stable isotope principles and fundamentals and applications in ecology Manuela G. Forero
11:30 - 12:30	<i>Coffee break</i>
12:30 - 13:30	Room 1 Principles and applications of IRMS to ecological studies: recent developments in laboratory instrumentation and new perspectives in isotope ratios analysis (Ricardo Álvarez)
13:30 - 15:00	<i>Lunch time</i>
15:00 - 17:00	Room 1 and 2 15:00-17:00. Practical methods in the laboratory: previous preparation of samples of different origin and analyses and result correction. (Ricardo Alvarez and Sarai López)
20:00 on	<i>Activity pending for approval: Tapas in the downtown (not included in the cost of the course)</i>



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Tuesday, 13th Nov

9:00 - 12:00	Meeting at the EBD and leaving in several cars to the Reserva Biológica de Doñana. Welcome coffee and accommodation
12:00 - 14:00	Room 3 Participants will make a short presentation of their research interests, , the contribution of stable isotopes to their specific research, and how this course could improve their results
14:00 - 16:00	<i>Lunch time and relax</i>
16:00 - 18:00	Room 3 Diet determination by using stable isotopes. Isotopic mixing models (mixSIAR, MixPolygon, Joan Giménez Verdugo)
18:00-18:30	<i>Break</i>
18:30-20:30	Room 3 Trophic niche calculation (Layman Metrics, SIBER, NicheRover, Joan Giménez Verdugo)
21:00 on ----	<i>Dinner</i>



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Wednesday, 14th/Nov

8:30-9:30	<i>Breakfast</i>
9:30 - 11:30	Room 3 Introduction to GIS tools and spatial analysis of isotopic data: Isoscapes (Francisco Ramírez Benítez)
11:30 – 12:00	<i>Morning tea/coffee</i>
12:00 - 14:00	Room 3 Isotopic applications to spatial assignments, main focus on migratory studies (Francisco Ramírez Benítez)
14:00 - 16:00	<i>Lunch time and relax</i>
16:00-17:30	Room 3 Application of Hydrogen stable isotopes in ecology: source characterisation, analytical problems and applications in aquatic and terrestrial ecology (David Soto)
17:30-18:00	<i>Break</i>
18:00 -19:00	Room 3 Practical examples with Hydrogen stable isotope data in aquatic system (David Soto)
20:30	<i>Dinner in Matalascañas (not included in the cost of the course)</i>



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Thursday, 15th/Nov

8:00-9:00	<i>Breakfast</i>
9:00 - 10:00	Room 3 Stable isotopes as indicators of water quality (Irene Paredes)
10:00 - 11:30	Room 3 Multi-isotopic approach ($\delta^{15}\text{N}$, $\delta^{34}\text{S}$, $\delta^{13}\text{C}$, $\delta^2\text{H}$, $\delta^{18}\text{O}$) to understand the origin and destination of dissolved nitrate in underground water (Albert Soler i Gil)
11:30-12:00	<i>Morning tea/coffee</i>
12:00-14:00	Room 4 Biogeochemical applications to the measurement of $\delta^{15}\text{N}$, $\delta^{13}\text{C}$ and $\delta^2\text{H}$ in natural compounds-specific (Antoni Rosell-Melé)
14:00 - 16:30	<i>Closing of the course, lunch time and relax</i>
16:30-20:00	Field trip across Doñana National Park.
21:00 on....	<i>Dinner</i>



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Friday, 16th/Nov

8:30 - 9:30	<i>Breakfast</i>
10:00	Meeting in the entrance of the Palacio de Doñana with the luggage ready to take a group picture before leaving.
10:30	Leaving to Seville crossing Doñana National Park. We could stop in several interesting points along this way: Muro de la Fao and Dehesa de Abajo and even have lunch around Dehesa de Abajo in some local restaurant. Arrival in Seville 18:00 approximately. If some assistant need to arrive to Seville early before lunch we could split the group and some cars could come back to Seville earlier