

DETAILED PROGRAMME

Monday July 2nd

Location: *Paraninfo Universidad de Zaragoza*
(<https://www.unizar.es/information-institution/name-and-address>)

17:00-20:00	Registration
18:30-19:30	Opening ceremony
19:30-21:00	Welcome Reception

Tuesday July 3rd

Location: Facultad de Educación . (<https://educacion.unizar.es/en>)

9:00-10.30 **Key Note 1: *María Pilar Jiménez Aleixandre***

10:30-11:00 **Coffee Break**

11:00-12:15 **Paper Session 1a - Symposium 1**
(Strand: 1. Students' conceptions and conceptual change)
Title: Genetic determinism and students' understanding of gene-trait relationships

Title **Students' Conception of the Relationship between Genes and Traits Affects their Understanding of Genetic Mechanisms**

Authors *Michal Haskel-Ittah and Anat Yarden*

Title **The Formation of Traits: A Framework for Systematizing Students' Problems of Explanatory Coherence and for Analyzing Teaching Materials in Genetics Education**

Authors *Marcus Hammann and Tim Heemann*

Title **Investigating the Relationship Between Beliefs in Genetic Determinism as Related to Knowledge in Genetics and Genomics**

Authors *Niklas Gericke, Rebecca Carver, Jérémy Castéra, Neima Alice Menezes Evangelista, Claire Coiffard Marre and Charbel N. El-Hani*

Title **Students' implicit associations between genetics concepts and essentialist/teleological intuitions**

Authors *Kostas Kampourakis, Florian Stern and Andreas Müller*

11:00-12:15 **Paper Session 1b (Strand: 2. Students' interest and motivation)**

Title **Bringing together what belongs together: theory & practice and children & nature**

Authors *Lara Weiser and Annette Scheersoi*

Title **Collaborative care for animals in class – Effects on the students' relatedness and their flow experience in biology lessons**

Authors *Alexander Eckes, Nadine Großmann, Annette Textor and Matthias Wilde*

Title	Motivation of Newly Arrived Students in the Science Classroom – “If one wants to become a doctor he has to study Biology.”
Authors	<i>Mario Schmiedebach and Claas Wegner</i>
Title	Interactive theatre workshops improve comprehension and attitudes to plants in primary science education
Authors	<i>Bethan Stagg and Michael Verde</i>
11:00-12:15	Paper Session 1c (Strand: 5. Teaching strategies and teaching environments)
Title	Teaching & learning laboratories in biology teacher education: Analysis of students’ reflections on teaching experiences
Authors	<i>Antje Saathoff and Corinna Hößle</i>
Title	Understanding immunobiological processes – Using everyday conceptions in group discussions
Authors	<i>Sonja Tinapp and Jörg Zabel</i>
Title	Learning to design biology lessons based on socio-scientific inquiry based learning (SSIBL)
Authors	<i>Andri Christodoulou, Ruth Amos, Christina Ottander and Katarina Ottander</i>
Title	Learning the Control-of-Variables Strategy: What works best?
Authors	<i>Johanna Kranz, Tobias Tempel, Katrin Kaufmann and Andrea Möller</i>
12:15-13:30	Paper Session 2a-Symposium 2 (Strand: 1. Students’ conceptions and conceptual change) Title: Understanding and Acceptance of Evolution in the Light of Threshold Concepts
Title	Using cluster analysis for categorization of student explanations of natural selection
Authors	<i>Andreas Göransson , Daniela Fiedler , & Lena Tibell</i>
Title	Knowledge of Randomness and Probability as Predictor for Understanding and Acceptance of Evolution
Authors	<i>Ross Nehm, Daniela Fiedler, Gena Sbeglia, & Ute Harms</i>
Title	Simulation EvoSketch: Learning Randomness and Probability in Evolution
Authors	<i>Daniela Fiedler & Ute Harms</i>
Title	Visualizing time in evolution
Authors	<i>Jörgen Stenlund & Lena A. E. Tibell</i>
12:15-13:30	Paper Session 2b (Strand: 4. Scientific thinking, nature of science and argumentation)
Title	Dialogue and Linguistic scaffolds as tools to help students making investigable questions
Authors	<i>Concepció Ferrés Gurt and Jordi Domènech Casal</i>

Title	The history of biology and the promotion of good questions in the learning of the plasma membrane	
Authors	<i>Carol Joglar, Sandra Patricia Rojas R. Rojas, Ricardo De La Fuente and Veronica Astroza</i>	
Title	Influence of Self-Efficacy and Motivation on Undergraduate Science Inquiry Practices	
Authors	<i>Melanie Peffer and Emily Royse</i>	
12:15-13:30	Paper Session 2c (Strand: 8. Health education)	
Title	Promotion of emotional competence in inclusive human biology lessons in class 5/6	
Authors	<i>Laura Ferreira Gonzalez, Igor Osipov, Dennis Hövel, Thomas Hennemann and Kirsten Schlüter</i>	
Title	Health and wellbeing – the school garden, a place to feel good	
Authors	<i>Susan Pollin and Carolin Retzlaff-Fürst</i>	
Title	Nutrition education and citizenship - Individual responsibility and democratic politics	
Authors	<i>Claes Malmberg and Anders Urbas</i>	
13:30-15:00	Lunch	
15:00-16:30	Poster Session 1a (Strand: 1. Students' conceptions and conceptual change & 9. Social, cultural and gender issues)	
	Authors	Title
	Araitz Uskola, Begoña Burgoa, Teresa Zamalloa and Gurutze Maguregi	Immune system model constructed by elementary pre-service teachers in a context about allergies and intolerances
	Nouredine Zghida and Zouhaire Lamrani	Nutrition and reproduction students' conceptions regarding to animal classification
	Sarah Schmid and Franz X. Bogner	Students' conceptions about the urban water-cycle
	Theresa Heidenreich and Harald Gropengießer	The scientific clarification as the central task of lesson content design
	Zofia Chyleńska and Eliza Rybska	A frog in a school throat – obstacles in sources of the students' scientific knowledge about herpetology.
	Bernat Esquiús Monrós and Arnau Amat Vinyoles	'How are plants dispersed?' Children's Intuitive ideas in 6th grade
	Susana García-Barros, María Jesús Fuentes-Silveira and Paula Ramos-Fariña	Ideas about the model of what a living is being expressed by secondary school pupils and teachers in training
	Jordi Domenech	Using problematized contexts to introduce the idea of classification criteria in taxonomy. Context-transference and resistant ideas.
	Diego Armando Retana-Alvarado, María Ángeles De Las Heras-Pérez, Bartolomé Vázquez-Bernal and Roque Jiménez-Pérez	Emotions of teachers in initial formation towards the teachers of Experimental Sciences Didactics according to gender

15:00-16:30

Poster Session 1b (Strand: 1. Students' conceptions and conceptual change)

Authors	Title
Rita Gazdag, Martin Willmann, Jörg Großschedl and Marcel Bucher	Learning in a science outreach laboratory: Development of a learning material on the ecology of the rhizosphere
Arnau Amat, Laura Martín and Isabel Jiménez	How the nutrition function of the human body is explained by elementary pre-service teachers
Katharina Düsing, Roman Asshoff and Marcus Hammann	The Levels of Biological Organisation – Engaging with Students' Conceptions and Promoting a Coherent Understanding Using the Example of the Carbon Cycle
Arritokieta Ortuzar-Iragorri, Iñaki Sanz-Azkue, Aritz Ruiz-Gonzalez and Joserra Díez	The plant species repertoire of basque secondary education students and their interest in nature
Peter Lampert, Suzanne Kapelari, Michael Kiehn and Martin Scheuch	Understanding Reproduction in Plants
Eliza Rybska and Jelle Boeve-De Pauw	Drawings on biology. How can drawings help to conceptualize flowers?
Helin Semilariski, Anne Laius and Uko Viisut	Analysis of the results of the university entrants' tests in biology
Rita Gazdag, Martin Willmann, Jörg Großschedl and Marcel Bucher	Learning in a science outreach laboratory: Development of a learning material on the ecology of the rhizosphere

15:00-16:30

Poster Session 1c (Strand: 5. Teaching strategies and teaching environments)

Authors	Title
Isabel Jiménez Bargalló, Arnau Amat Vinyoles and Jordi Martí Freixas	Scientific posters within biodiver project: formative assessment in undergraduate primary teachers' courses
Tali Tal, Irene Bayer and Kara Haas	Elementary School Teachers Learning Life-Sciences Outdoors
José María Marcos-Merino, Rocío Esteban Gallego and Jesús Gómez Ochoa de Alda	Training pre-service teachers to approach interdisciplinary: learning Physics and Chemistry at Biology lessons
Katrin Kaufmann and Andrea Moeller	Influence of Role Assignment on Student Activity during Cooperative Inquiry Learning in Science Class
Helge Gresch	Dealing with Teleological Explanations – A Language Issue in Evolution Classes?
Idit Adler, Tali Tal, Irene Bayer, Jane Lee, Stephen Modell, Ella Greene-Moton, Toby Citrin and Joesph Krajcik	"Models in action": Using scientific knowledge for social action to support science learning
Beatriz Carrasquer Álvarez, Adrián Ponz Miranda and M ^a Victoria Álvarez Sevilla	The floral diagram as a didactic resource
Irma Mavrič Gavez and Gregor Torkar	Herbarium in primary teacher education
Emilio Costillo, Isaac Corbacho, Ana Belén Borrachero, María Carmen Conde, José Samuel Sánchez and Vicente Mellado	Cognitive and affective domains in nature field trips designed by prospective teachers
Bianca Kuhlemann and Corinna Hößle	Students of Biology Teacher Education develop diagnostic tasks and assess their potential

16:30-17:00

Coffee Break

17:00-18:30	Paper Session 3a (Strand: 2. Students' interest and motivation)
Title	Academic Self-Concept and its Relation to Achievement – Biology-Specific or Science bound?
Authors	<i>Jörg Großschedl, Virginia Welter and Ute Harms</i>
Title	Microbiology learning through homemade microorganisms' culture: role of students' emotions and values
Authors	<i>José María Marcos-Merino, Rocío Esteban Gallego and Jesús Gómez Ochoa de Alda</i>
Title	Long-term knowledge over one year with a student-centered inquiry-based learning module about bionics.
Authors	<i>Michaela Marth and Franz X Bogner</i>
Title	Engaging students in studying Human biology through Digital Storytelling
Authors	<i>Maria Dokopoulou and Evangelia Pavlatou</i>
17:00-18:30	Paper Session 3b (Strand: 3 Students' values, attitudes and decision-making)
Title	Decision Making Considerations of Israeli Religious Undergraduate Students in the Field of Genetic Testing and Genetic Counseling.
Authors	<i>Merav Siani and Orit Ben-Zvi Assaraf</i>
Title	Decision-making competence regarding the possibilities of genome editing
Authors	<i>Laura Maria Heinisch, Corinna Hößle, Ulrike-Marie Krause and Wiebke Rathje</i>
Title	Evolution, affect and acceptance: A psychoanalytical examination of the controversy
Authors	<i>Emma Newall</i>
Title	Persuasive effects of role-play about a socio-scientific issue
Authors	<i>Melanie Basten and Matthias Wilde</i>
Title	Students' views on the value of protecting biodiversity
Authors	<i>Marcus Grace, Carys Hughes and Janice Griffiths</i>
17:00-18:30	Paper Session 3c (Strand: 7. Environmental education)
Title	An analysis of seventh grade students' mental models concerning climate change
Authors	<i>Vanessa Sesto and Isabel García-Rodeja</i>
Title	Regenerating our place: Fostering a sense of place through rehabilitation and place-based education
Authors	<i>Wisam Sedawi, Orit Ben Zvi- Assraf and Michael Reiss</i>
Title	"This curse of knowledge..." How do biodiversity scientists connect their expertise to their understanding of nature?
Authors	<i>Judith Wiegelmann and Jörg Zabel</i>
18:40-19:40	Early Career Researchers' meeting point

Wednesday July 4th

Location: Facultad de Educación (<https://educacion.unizar.es/en>)

9:00-10:30

Paper Session 4a (Strand: 4. Scientific thinking, nature of science and argumentation)

Title

Learning using contradictory texts promotes students' critical thinking

Authors

Moriah Ariely and Anat Yarden

Title

Assessing professional vision of biology teacher students

Authors

Friederike Kaiser and Philipp Schmiemann

Title

Contingency in Peer Scaffolding when Addressing Socio-scientific Issues in Biotechnology

Authors

Birgitta Berne

Title

Experts' perceptions on systems thinking in biology education

Authors

Melde G.R. Gilissen, Marie-Christine P.J. Knippels, Roald P. Verhoeff and Wouter R. Van Joolingen

9:00-10:30

Paper Session 4b (Strand: 5. Teaching strategies and teaching environments)

Title

Teaching to teach the model of evolution in Primary Education: an experience with pre-service teachers at a Spanish university

Authors

Lucía Vázquez-Ben and Ánxela Bugallo-Rodríguez

Title

A role-change approach in biology pre-service-teacher education at an outreach lab: a direct replication study adding a new focus on module-phase-dependent development of pedagogical content knowledge

Authors

Franz-Josef Scharfenberg and Franz X. Bogner

Title

Natural history dioramas for teaching biodiversity on an ecosystem level: Programme for pre-service biology teacher education

Authors

Špela Hrast, Ljerka Trampuž, Staša Tome, Sue Dale Tunnicliffe and Gregor Torkar

Title

Pre-service teachers' use of research: from pedagogic soup to reflective practitioners through conjecture maps?

Authors

Francois Lombard, Laura Weiss and Marie Merminod

9:00-10:30

Paper Session 4c (Strand: 5. Teaching strategies and teaching environments)

Title

Topic-specific didactics in biology in higher education – easily achieved but absent in biology faculty teaching

Authors

Kristina Andersson and Annica Gullberg

Title	Make biology relevant again! Student teachers' views on the relevance of biology education
Authors	<i>Justus Mutanen and Anna Uitto</i>
Title	Can prompt-cards support students' self-efficacy regarding experimentation and their quality of motivation during experimentation in biology lessons?
Authors	<i>Cornelia Stiller, Alexandra Stümmler and Matthias Wilde</i>
Title	Systems thinking and the theoretical nature of seeing coherence
Authors	<i>Roald Verhoeff, Melde Gemma Regina Gilissen and Marie-Christine Knippels</i>
10:30-11:00	Coffee Break
11:00-12:15	Paper Session 5a Symposium (Strand: 5. Teaching strategies and teaching environments) Title: Thoughtfulness in Biology Education
Title	Multi-disciplinary reflections on Thoughtfulness in Biology Education
Authors	<i>Paul Davies, Haira Emanuela Gandolfi, Ralph Levinson & Stephen Price</i>
Title	Narratives as a way to foster thoughtfulness in biology education
Authors	<i>Marie-Christine Knippels, Jörg Zabel, Julia Zdunek & Alexandra Slegers</i>
Title	The Role of Students' Beliefs about Neuroscientific Research in Moral and Philosophical Reasoning
Authors	<i>Alexander Bergmann & Jörg Zabel</i>
Title	Thoughtful Teachers, Thoughtful Moments, Thoughtful Students? – A Critical Reflection on the Culture of Learning in Biology Classes and Biology Teacher Training
Authors	<i>Arne Dittmer, Britta Lübke & Ulrich Gebhard</i>
11:00-12:15	Paper Session 5b (Strand: 4. Scientific thinking, nature of science and argumentation)
Title	Use of Evidence by 3-4 and 5-6 year-olds: a Comparative Study
Authors	<i>Pablo Brocos, Sabela F. Monteiro and María Pilar Jiménez-Aleixandre</i>
Title	Effects of redundancy in multiple external representations on biology test performance
Authors	<i>Lara Magnus, Kerstin Schütte and Julia Schwanewedel</i>
Title	Comparison of Student Primary Literature Reading Approaches to a Deep and Surface Learning Model
Authors	<i>Kirk Hepburn, Emily Leaman, George Ogolo, Tamunoibim Sambo and Nienke van Houten</i>

Title	A short intervention that promotes the abstract reasoning scheme improves ninth graders' achievements in photosynthesis
<i>Authors</i>	<i>Reuven Babai and Esty Fridman</i>
12:15-13:30	Paper Session 6a (Strand: 4. Scientific thinking, nature of science and argumentation)
Title	Students' initial understanding of models of complex biological processes
<i>Authors</i>	<i>Susanne Jansen, Marie-Christine Knippels and Wouter van Joolingen</i>
Title	Is teaching Biology through socioscientific issues enough for the development of argumentation skills?
<i>Authors</i>	<i>Martha Georgiou, Evangelia Mavrikaki and Constantinos Constantinou</i>
Title	Students' arguments and reasoning in genetics: dealing with the complex interactions between genotype and phenotype in the expression of animal diseases.
<i>Authors</i>	<i>Noa Ageitos Prego, Laura Colucci-Gray and Blanca Puig</i>
Title	Students' Reasoning About Teleological Agency
<i>Authors</i>	<i>Friederike Trommler and Marcus Hammann</i>
12:15-13:30	Paper Session 6b (Strand: 5. Teaching strategies and teaching environments)
Title	Fostering prospective biology teachers' diagnostic competence – Effects of an intervention on basic diagnostic skills
<i>Authors</i>	<i>Tobias Alexander Joos and Ulrike Spörhase</i>
Title	Recording and Promotion of subject-specific Professional Knowledge and Beliefs of prospective Biology Teachers
<i>Authors</i>	<i>Katharina Gimbel and Kathrin Ziepprecht</i>
Title	What timss tells us about education for sustainable development - a comparative study between biology and science teachers in sweden
<i>Authors</i>	<i>Jelle Boeve-De Pauw and Niklas Gericke</i>
Title	The effects of teacher self-efficacy and experienced Biology lessons as a student at school on prospective teachers' beliefs about teaching and learning Biology
<i>Authors</i>	<i>Fabian Schumacher, Melanie Basten and Matthias Wilde</i>
12:15-13:30	Paper Session 6c (Strand: 9. Social, cultural, and gender issues)
Title	Giving the silent a voice: How rangatahi used Actor-Network Theory to unravel the complexity of a New Zealand native forest ecosystem.

<i>Authors</i>	<i>Bev France and Sally Birdsall</i>
Title	Gender differences of estonian gymnasium students' biological cognitive skills within socio-scientific issue of lactose intolerance
<i>Authors</i>	<i>Anne Laius, Helin Semilarski and Uko Viisut</i>
Title	Differences in subject teachers' perceptions of their role in promoting sustainability school culture
<i>Authors</i>	<i>Anna Uitto and Seppo Saloranta</i>
13:30-15:00	Lunch
16:00-20:00	Tours – social event

Thursday July 5th

Location: Facultad de Educación (<https://educacion.unizar.es/en>)

9:00-10:00	Paper Session 7a (Strand: 1. Students' conceptions and conceptual change)
Title	Context-dependency of beliefs in genetic determinism: Indications for a mind-body split?
<i>Authors</i>	<i>Johannes Zang, Tim Heemann and Marcus Hammann</i>
Title	Understanding of evolution through natural selection in university freshmen: a comparison between students graduating from secondary education in Flanders, Belgium and the Netherlands.
<i>Authors</i>	<i>Rianne Pinxten and Ellen Vandervieren</i>
Title	How to make evolution an operational concept to understand the world: learning with Darwin.
<i>Authors</i>	<i>Xana Sá-Pinto, Alexandre Pinto and Joaquim Bernardino Lopes</i>
9:00-10:00	Paper Session 7b (Strand: 5. Teaching strategies and teaching environments)
Title	Instructional efficiency in an outreach lab: Model constructors versus model viewers
<i>Authors</i>	<i>Julia Mierdel and Franz Bogner</i>
Title	No Escape: the rise of Escape Rooms in secondary biology education. What do teachers and students perceive as the educational potential of Escape Rooms in secondary biology education?
<i>Authors</i>	<i>Alice Veldkamp, Marie-Christine P.J. Knippels and Wouter van Joolingen</i>

Title	Bifurcated Domino Path Approach: the theoretical output of a 'design research' study
<i>Authors</i>	<i>Georgios Ampatzidis and Marida Ergazaki</i>
9:00-10:00	Paper Session 7c (Strand: 7. Environmental education)
Title	Ecosystems in science education research in the last 20 years
<i>Authors</i>	<i>Pedro Lucha and María José Sáez Bondía</i>
Title	How Appreciation of Nature intervenes with the Major Environmental Values (2-MEV)
<i>Authors</i>	<i>Franz X. Bogner and Michael Wiseman</i>
Title	Diagnoses of teachers regarding students' strategies when addressed as moral subjects in the context of ESD
<i>Authors</i>	<i>Anne-Katrin Holfelder</i>
10:00-11:30	Paper Session 8a (Strand: 5. Teaching strategies and teaching environments)
Title	Inconsistent representation of alleles' symbols in textbooks
<i>Authors</i>	<i>Michal Haskel-Ittah, Ravit Golan Duncan and Anat Yarden</i>
Title	Prepared to teach genetics in school? – Examination of beliefs about learning content and instructional practice as well as academic self-concept of prospective biology teachers
<i>Authors</i>	<i>Kathrin Ziepprecht, Katharina Gimbel and Jaqueline Jäger</i>
Title	Epigenetic literacy and the implementation of epigenetics in school biology
<i>Authors</i>	<i>Niklas Gericke, Birgitta Mc Ewen and Karin Thörne</i>
Title	Genetics contents and societal issues – what are the approaches the secondary school biology teachers use in their teaching?
<i>Authors</i>	<i>Tuomas Aivelo and Anna Uitto</i>
Title	Representations of gene models in Greek secondary school biology textbooks
<i>Authors</i>	<i>Akrivi Christidou and Penelope Papadopoulou</i>
10:00-11:30	Paper Session 8b (Strand: 6. Teaching and learning with educational technology)
Title	Using an Innovative Online Modeling Tool to Support Students' Modeling Practice
<i>Authors</i>	<i>Tom Bielik and Sebastian Opitz</i>
Title	Digitally Led Experiments - Results of an Evaluation Study with the App divox
<i>Authors</i>	<i>Monique Meier</i>

Title	Interacting with Digital Touch Tables to Explore the Biological Microcosmos	
Authors	<i>Konrad Schönborn, Gunnar Höst, Henry Fröcklin and Lena Tibell</i>	
Title	Effectiveness of digital versus traditional (paper-based) dichotomous keys for identification of woody species	
Authors	<i>Gregor Torkar</i>	
Title	Supporting students' freedom during mobile-aided fieldwork in a biology lesson	
Authors	<i>Anttoni Kervinen, Anna Uitto and Kalle Juuti</i>	
10:00-11:30	Paper Session 8 c (Strand: 6. Teaching and learning with educational technology)	
Title	Combining biology education & education for sustainability in preschool: Insights from the 2nd cycle of a design research study	
Authors	<i>Maria-Christina Kasimati and Marida Ergazaki</i>	
Title	Investigating the Short- and Medium-term Effects of a School Kitchen-garden Project on Elementary School Students' Environmental Conceptions	
Authors	<i>Stella Petrou and Konstantinos Korfiatis</i>	
Title	Learning in nature: primary school children develop through biological experiences which connect the curriculum	
Authors	<i>Ruth Amos and Michael Reiss</i>	
Title	The potential of using digital tools in an environmental education context to address pollinator conservation issues	
Authors	<i>Mona Schönfelder and Franz X. Bogner</i>	
11:30-12:00	Coffee Break	
12:00-13:30	Poster Session 2a (Strand: 2. Students' interest and motivation & 3. Students' values, attitudes and decision-making)	
	Authors	Title
	Inga Desch, Christian Vollmer and Peter Wüst-Ackermann	Gender Differences in attitudes towards animals and nature
	Calavia Lombardo, Bravo Torija and Gil Quílez	Analysis of the contents of bioethics topics in Science Culture textbooks
	Alexandros Amprazis and Penelope Papadopoulou	Attitudes towards plants: Evaluating the intensity of the "Plant Blindness" phenomenon in Greek primary schools.
	Stephanie Ohlberger and Claas Wegner	Differences between girls and boys regarding motivational changes due to bilingual modules in biology

Annette Scheersoi, Jonathan Hense and Lara Weiser	Multico: Promoting students' interest and their awareness of science careers
Nadine Großmann and Matthias Wilde	The effects of autonomy-supportive and controlling teaching behavior on students' goal orientations in biology lessons
María Martínez-Chico, Farida Abou Akl Sánchez and M.Rut Jiménez Liso	I won't believe it until I see it? An inquiry-based sequence on "Microorganisms" for secondary school

12:00-13:30

Poster Session 2b (Strand: 4. Scientific thinking, nature of science and argumentation)

Authors	Title
Sue Dale Tunnicliffe and Catherine Bruguere	Biology concepts and Pictorial Fiction Books. Do early years children comprehend?
Stephen Price, Paul Davies, Haira Gandolfi and Ralph Levinson	School students' engagement with contemporary biological research
Dagmar Frick and Claudia Nerdel	Acquisition of Mental Models in the Mathematical Modelling of Population Dynamics
Pablo Brocos and María Pilar Jiménez-Aleixandre	The optimization strategy as a scaffold for argumentation and decision-making about diets in secondary education
Anna Marbà-Tallada and Jordi Domenech-Casal	Promoting the role of data and scientific models in students' argumentation on socio-scientific issues through communication scaffolds
Torsten Kreher and Carolin Retzlaff-Fürst	Effects of Scientific Literacy on School Garden as an Extracurricular Place for Learning on Understanding of Nature of Science by Pupils of Secondary Classes
Martin Feike and Carolin Retzlaff-Fürst	Frequency of mathematical exercises in biology classes
Ohad Levkovich and Anat Yarden	Viewing molecular models of proteins via Jmol: Evaluating students' epistemic knowledge about models
Diego Armando Retana-Alvarado, María Marta Camacho-Álvarez, Bartolomé Vázquez-Bernal and Andrés Osborne-Rovira	Emotions of Costa Rican Secondary students towards the development of a research project

12:00-13:30

Poster Session 2c (Strand: 6. Teaching and learning with educational technology & 7. Environmental education)

Authors	Title
Emanuel Nestler and Carolin Retzlaff-Fürst	Teaching Scientific Inquiry in Biology: an Intervention Study about Mentoring for Pre-Service Biology Teachers

Linda La Velle, Jan Georgeson and Bethan Stagg	Mobile and Geographical information technologies for Phenological Investigation across European schools: innovation and learning.
Michal Topaz and Tali Tal	Inspired by Bioinspiration at the zoo: Three case-studies
Jennifer Schneiderhan and Franz X. Bogner	Students' attitudes towards biodiversity conservation
Arritokieta Ortuzar-Iragorri, Iñaki Sanz-Azkue, Aritz Ruiz-Gonzalez and Joserra Díez	The plant species repertoire of basque secondary education students and their interest in nature
Jenny Duarte, Edgar Valbuena and Maria Cristina Pansera de Araujo	Environmental education from the Biology class. Animal abuse as a fully encompassing content

13:30-15:00 **Lunch**

15:00-16:00 Business meeting

16:00-16:30 **Coffee Break**

16:30-17:30 Poster Session 3a (Strand: 5. Teaching strategies and teaching environments)

Authors

Title

Manon Albert and Marie-Claude Bernard

Teachers' views on integrating socially acute questions (SAQ) into biology classrooms: role of the curriculum and the organizational structure in Québec's colleges

M^a-Jesús Fuentes-Silveira, Juan Rivadulla-López, Susana García-Barros and Cristina Martínez-Losada

Is biodiversity necessary in the ecosystem? A classroom experience

Maria Cristina Pansera-De-Araújo and Rúbia Emmel

The practice of research-training-action, basic education curriculum and textbook, in a biological sciences degree

Lissy Jäkel, Sabrina Frieß, Ulrike Kiehne and David Hergesell

Processes of professionalisation – Outdoor teaching and assessment of PCK

16:30-17:30 Poster Session 3b (Strand: 5. Teaching strategies and teaching environments)

Authors

Title

Marlen Grimm and Carolin Retzlaff-Fuerst

Learning and teaching with rubrics (Kompetenzraster) - Development and evaluation of inclusive learning environments in biology classes to foster students' success and motivation

Emilio Castillo, José María Merino, Rocío Esteban, Javier

Analysis of the pedagogical strategies used by prospective teachers to design nature field trips

Cubero, José Antonio
Regodón and José Ramón
Vallejo

Joanne Nicholl Exploring pre-service biology teachers' experiences on a zoo trip

16:30-17:30 **Poster Session 3c (Strand: 8. Health Education)**

Authors

Title

Graça S. Carvalho, Liziane
Martins and Charbel El-Hani

The relevance of Biomedical and Socioecological approaches in
school Health Education

Graça Carvalho, Paulo Mafra
and Nelson Lima

Primary school health education: how children can learn about
microbes and hands hygiene

Sarah Dannemann

Effects on primary and comprehensive school teachers' attitudes,
knowledge, and self-efficacy of health education during their
participation in an activity program in class

Eliane Gonçalves Dos Santos
and Maria Cristina Pansera
de Araújo

Study of sexually transmissible diseases in commercial films:
contributions to health education in teaching training

16:30-17:30 **Poster Session 3d (Strand: 10. Practical work and field work)**

Authors

Title

Andrej Šorgo and Urška
Cigler

Teacher assessment, grading and feedback: biology laboratory
work in Slovenian secondary school

María José Sáez Bondía and
Ángel Luis Cortés Gracia

How do pre-service teachers address tree and bush identification?

Sebastian Opitz, Jasmin
Colakoglu and Ute Harms

First steps in Researching the International Biology Olympiad:
Analyzing what IBO Exams Assess

Beatriz Bravo-Torija, Beatriz
Mazas-Gil, María José Gil-
Quílez, Begoña Martínez-
Peña and Nerea Idoipe-
Gómez

Applying scientific skills in a mould experience in Primary
Education: How could we prevent the moulds coming out in food?

17:30-18:30 **Researchers' café**

20:00-23:30 **Conference Dinner**

Friday July 6th

Location: Facultad de Educación (<https://educacion.unizar.es/en>)

9:00-9:45 Round table about “Publishing in Biology Education Research”

9:45-10:45 **Key note 2: Jesús Martínez de la Fuente**

10:45-11:15 **Coffee Break**

11:15-12:15 Paper Session 9a (Strand: 1. Students’ conceptions and conceptual change)

Title Students’ Reasoning About Teleological Agency

Authors Friederike Trommler and Marcus Hammann

Title Exploring the role of person analogy in young children’s reasoning about the biological world

Authors Marida Ergazaki, Aggeliki Dimitrakopoulou and Spai Alexandra

11:15-12:15 Paper Session 9b (Strand: 10. Practical work and field work)

Title Inquiry is NOT Only about Hands-On Learning: Insights into Inquiry-Based Science Education from Two Different Teachers Groups

Authors Shani Zur, Tali Tal and Mahsa Tsaushu

Title Proposal of a Model for Professional Development: Perspectives and Stages that contribute to the improvement of the practice of teaching biology

Authors Eduardo Ravanal Moreno and Édgar Valbuena Ussa

11:15-12:15 Paper Session 9c (Strand: 11. Research methods and theoretical issues)

Title Discipline-based or context-based? A comparison of Biology curriculum in four countries.

Authors Edith Dempster

Title Curriculum narrowing in the university entrance assessment in Biology

Authors Francisco Luis Alda, María José Gil Quílez and María Jesús Rodríguez Yoldi

12:15-13:00 Closing ceremony

13:30-15:00 **Lunch**