THE LEARNING AND TEACHING OF CALCULUS ACROSS DISCIPLINES
5 – 9 JUNE 2023

CONFERENCE SCHEDULE

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9.00 – 10.15	Opening 9h – 10h30	Plenary 2 Vosskamp (Economics) 9h – 10h30	Plenary 4 Faulkner (Engineering) 9h – 10h30	Paper presentations Session 4 9h – 10h30	Discussion group DGC 9h – 10h30
10.30 – 10.45	Break 10h30 – 11h	Break 10h30 – 11h	Break 10h30 – 11h	Break 10h30 – 11h	Break 10h30 – 11h
11.00 – 12.00	Paper presentations Session 1 11h – 12h15	Paper presentations Session 2 11h – 12h15	Paper presentations Session 3 11h – 12h15	Paper presentations Session 5 11h – 12h15	Session on collaborations 11h – 12h15
12.15 – 13.30	Lunch 12h15 – 13h45	Lunch 12h15 – 13h45	Lunch 12h15 – 13h45	Lunch 12h15 – 13h45	Lunch 12h15 – 13h45
13.45 – 15.00	Plenary 1 Díaz Eaton (Biology) 13h45 – 15h15	Plenary 3 Towns (Chemistry) 13h45 – 15h15	Plenary 5 White Brahmia (Physics) 13h45 – 15h15	Discussion group DGA 13h45 – 15h15	Reports from discussion groups / Looking ahead / Conclusions 13h45 – 15h
15.15 – 15.30	Break 15h15 – 15h45	Break 15h15 – 15h45	Break 15h15 – 15h45	Break 15h15 – 15h45	
15.45 – 17.00	Brainstorm session BR1 15h45 – 17h	Brainstorm session BR2 15h45 – 17h	Brainstorm session BR3 15h45 – 17h	Discussion group DGB 15h45 – 17h15	

Conference Excursion: Tuesday from 17:30

Conference Dinner: Thursday, from 19:00

PAPER PRESENTATIONS

PP1 Monday 5 11h – 12h15	PP1.1	Haile Gilroy & Melinda Lanius	Ottavio G. Rizzo
		On motivation and narrative in discipline-specific calculus texts	What is a limit? Concept image of limits as time goes to infinity in life sciences students
	PP1.2	Farzad Radmehr, Saeid Haghjoo & Ebrahim Reyhani	Laura Branchetti
		Task design using a realization tree: The case of the derivative in the context of chemistry	Characterizing Calculus-based physical explanations in terms of rationality: the case of motion in resources for high school teachers
	PP1.3	Ida Maria Landgärds	Mesa Walker & Tevian Dray
		The transition between mathematics and microeconomics: introduction to Lagrange's method	Instances of confounding when differentiating vector fields

PP2 Tuesday 6 11h – 12h15	PP2.1	Yuriy Rogovchenko & Svitlana Rogovchenko	Thomas Lecorre & Imène Ghedamsi
		Mathematics education of future biologists: A strong need for brokering between mathematics and biology communities of practice	Is the physician a mathematician that takes care of reality and mathematician a physician that cares for real? The case of the falling and bouncing ball
	PP2.2	María Trigueros & Rafael Martínez-Planell	Mathilde Hitier & Alejandro S. González-Martín
		The use of modeling in the learning of differential equations in an economics course	Investigating practices related to the derivative in kinematics contexts in calculus and mechanics courses
	PP2.3	Matija Bašić & Željka Milin Šipuš	Lia Noah-Sella, Anatoli Kouropatov, Dafna Elias & Tommy Dreyfus
		Connecting mathematics and economics: the case of the integral	Influence of learning physics on reasoning about RoC and accumulation

PP3 Wednesday 7 11h – 12h15	PP3.1	Steve Bennoun, Alan Garfinkel & Eric Deeds	Sofie Van den Eynde, Martin Goedhart, Johan Deprez & Mieke De Cock
		Bridging the Gap Between the Biology and Calculus by Teaching Modeling	Making the structural role of mathematics in physics explicit for students: design of a tutorial in the context of the heat equation
	PP3.2	Frank Feudel	Alon Pinto & Boaz Katz
		What knowledge related to the derivative is commonly used in basic economics textbooks? – Selected results from a praxeological analysis	Numerical sensemaking in secondary calculus: Does it make sense?
	PP3.3	Jörg Kortemeyer & Rolf Biehler	Henry Taylor & Michael Loverude
		The use of integrals for accumulation and mean values in basic electrical engineering courses	"I forget about math when I go to physics"

PP4 Thursday 8 9h – 10h30	PP4.1	Thomas Hausberger & Bernard Godelle	Zeynep Topdemir, John R. Thompson & Michael E. Loverude
		Meeting the biocalculus challenges: a reflection on didactic transposition processes in a cross-disciplinary context	How students reason with derivatives of vector field diagrams
	PP4.2	Matija Bašić & Željka Milin Šipuš	
		Multivariable integrals for physicists – a concept or a tool?	
	PP4.3	Hans Kristian Nilsen	Maria Al Dehaybes, Johan Deprez, Paul van Kampen & Mieke De Cock
		Integration and differentials in a textbook for engineering science and building materials	Students' understanding of Laplacian and gradient in mathematics and physics contexts

PP5 Thursday 8 11h – 12h15	PP5.1	Jon-Marc G. Rodriguez & Slade McAfee	Deborah King, Ava Greenwood & Michael Jennings
		Chemistry as a context to investigate students' graphical conceptions of rate	A contextualised calculus unit for science students
	PP5.2	Frode Rønning	Reinhard Oldenburg
		Mathematics and engineering: Interplay between praxeologies	The procedural-conceptual dichotomy is not invariant under transposition to applied fields

VARIOUS TASKS FOR CONFERENCE PARTICIPANTS

Moderators and reporters in discussions

This list is flexible; you are welcome to switch with another participant; if you do, please let PC members Dreyfus, González-Martín, Monaghan or Nardi know.

Session	Time	Moderator	Reporter
BR1.1	Monday 15h45-17h00	Dreyfus	Pinto
BR1.2	Monday 15h45-17h00	Monaghan	González-Martín
BR1.3	Monday 15h45-17h00	Nardi	Biza
BR2.1	Tuesday 15h45-17h00	Nilsen	Van Kampen
BR2.2	Tuesday 15h45-17h00	Hausberger	Kelly
BR2.3	Tuesday 15h45-17h00	Thompson	Bennoun
BR3.1	Wednesday 15h45-17h00	Trigueros	King
BR3.2	Wednesday 15h45-17h00	Rogovchenko Y.	Gilroy
BR3.3	Wednesday 15h45-17h00	Rønning	Bašić
DGA1	Thursday 13h45-15h15	Lawson	Loverude
DGA2	Thursday 13h45-15h15	Gjesteland	Rodriguez
DGA3	Thursday 13h45-15h15	Dray	Kortemeyer
DGB1	Thursday 15h45-17h15	Biehler	Katz
DGB2	Thursday 15h45-17h15	Towns	Branchetti
DGB3	Thursday 15h45-17h15	Diaz Eaton	Noah-Sella
DGC1	Friday 9h-10h30	Faulkner	Hitier
DGC2	Friday 9h-10h30	Vosskamp	Oldenburg
DGC3	Friday 9h-10h30	White Brahmia	Milin Šipuš

Chairing paper presentation sessions

The list of chairs is flexible; you are welcome to switch with another participant; if you do, please let PC members Dreyfus, González-Martín, Monaghan or Nardi know*.*

Session	Time	Speakers		Chair
PP1.1	Monday 11h-12h15	Gilroy	Rizzo	Ghedamsi
PP1.2	Monday 11h-12h15	Radmehr	Branchetti	Martínez-Planell
PP1.3	Monday 11h-12h15	Landgärds	Dray	Feudel
PP2.1	Tuesday 11h-12h15	Rogovchenko	Lecorre	Lie
PP2.2	Tuesday 11h-12h15	Trigueros	Hitier	López Solís
PP2.3	Tuesday 11h-12h15	Milin Šipuš	Noah-Sella	Landgärds
PP3.1	Wednesday 11h-12h15	Bennoun	Van den Eynde	McAfee
PP3.2	Wednesday 11h-12h15	Feudel	Pinto	Al Dehaybes
PP3.3	Wednesday 11h-12h15	Kortemeyer	Loverude	Akrouti
PP4.1	Thursday 9h-10h30	Hausberger	Thompson	Rizzo
PP4.2	Thursday 9h-10h30	Bašić		Radmehr
PP4.3	Thursday 9h-10h30	Nilsen	Al Dehaybes	Van den Eynde
PP5.1	Thursday 11h-12h15	Rodriguez	King	Rogovchenko S.
PP5.2	Thursday 11h-12h15	Rønning	Oldenburg	Lecorre