

**IASC-ERS Report on Webinar Course**  
**“Functional Data Analysis for Density Functions in Bayes Spaces”**  
**April 29-30, 2021**

The European Regional Section of the International Association for Statistical Computing (IASC-ERS), the International Association for Statistical Computing (IASC), and the International Statistical Institute (ISI) held a successful Webinar on functional data analysis on April 29-30, 2021. The IASC-ERS Webinar Course “An Introduction to Functional Data Analysis for Density Functions in Bayes Spaces” was team-taught by Alessandra Menafoglio (Politecnico di Milano), Karel Hron (Palacký University) and Jitka Machalová (Palacký University).

175 students pre-registered for the course on the GoToWebinar platform. 132 (75%) students attended the course on the first day and 94 (54%) on the second day. Participants came from 44 different countries: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Côte d’Ivoire, Croatia, Czech Republic, Denmark, Finland, France, Germany, Ghana, India, Indonesia, Iran, Ireland, Israel, Italy, Japan, Kazakhstan, Macedonia, Mexico, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, Portugal, Republic of Korea, Romania, Saudi Arabia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States. Participants were academics (33%), PhD and Master students (29%), researchers (26%), and professionals coming from government institutions and private industry (9%).

The International Organizing Committee consisted of Cristian Gatu (IASC-ERS Chairperson, Romania), Sara Taskinen (IASC-ERS Scientific Secretary, Finland) and Luis Firinguetti-Limone (IASC Webinar Coordinator, Chile). Katie Junasova, Junior Webmaster at the International Statistical Institute, provided support with the organization and with the GoToWebinar platform, and Juergen Symanzik, President of IASC, helped with organizing the Webinar.

The webinar course was supported by the European Regional Section of the International Association for Statistical Computing (IASC-ERS), the International Association for Statistical Computing (IASC), and the International Statistical Institute (ISI).

**Objectives of the IASC-ERS School on Computational Statistics and Data Science**

- 1) To spread the knowledge base and advances in Statistical Computing in Latin America and the world,
- 2) To provide an overview of the state-of-the-art of the ongoing research in computational statistics,

- 3) To provide an overall perspective of the application of computational statistics in data science problems,
- 4) To present applications where computational statistics have been crucial to solve problems in real-life applications, and
- 5) To increase the number of researchers and practitioners in computational statistics and data science.

**Agenda and course program.**

**Thursday, April 29<sup>th</sup> 2021:**

- Opening: 14h00 – 14h15
- Session 1: 14h15 – 15h00 (The geometry of Bayes spaces)
- Session 2: 15h10 – 15h55 (Smoothing splines for densities)
- Session 3: 16h05 – 16h50 (Dimensionality reduction in Bayes spaces: Simplicial Functional Principal Component Analysis)

**Friday, April 30<sup>th</sup> 2021:**

- Session 1: 14h00 – 14h45 (Anomaly detection for density data based on control charts)
- Session 2: 14h55 – 15h40 (Density-on-scalar, scalar-on-density and density-on-density functional regression)
- Session 3: 15h50 – 16h35 (Spatial statistics for distributional observations: spatial modeling & kriging)
- Closing: 16h35 – 16h45

**Number of students by day**

Date	Attendance
Thursday, April 29	132
Friday, April 30	94
Total (without replication)	135

Number of students with registration form (country, gender, and occupation): 175

**Number of students attending 1 or 2 days**

Category	Attendance	Percentage (%)
Both days	91	67.4
Thursday, April 29 only	43	31.9
Friday, April 30 only	1	0.7
Total	135	100.00

**Number of (registered) students by gender**

Gender	Attendance	Percentage (%)
Female	69	39.4
Male	106	60.6
Total	175	100.00

**Number of (registered) students by occupation**

Occupation	Attendance	Percentage (%)
Academic	58	33.1
PhD and Master Students	50	28.6
Researcher	46	26.3
Business and industry professional, Government officer	16	9.1
Other	5	0.6
Total	175	100.00

**Number of (registered) students by country**

Country	Attendance	Percentage (%)	Country	Attendance	Percentage (%)
Argentina	1	0.6	Japan	2	1.1
Australia	5	2.9	Kazakhstan	1	0.6
Austria	1	0.6	Macedonia	1	0.6
Belgium	1	0.6	Mexico	1	0.6
Brazil	2	1.1	New Zealand	1	0.6
Canada	5	2.9	Nigeria	1	0.6
Chile	2	1.1	Norway	3	1.7
China	4	2.3	Pakistan	1	0.6
Côte d'Ivoire	1	0.6	Philippines	8	4.6
Croatia	1	0.6	Poland	1	0.6
Czech Rep.	6	3.4	Portugal	14	8.0
Denmark	1	0.6	Rep. of Korea	1	0.6
Finland	1	0.6	Romania	2	1.1
France	8	4.6	Saudi Arabia	1	0.6
Germany	2	1.1	Slovenia	1	0.6
Ghana	3	1.7	South Africa	3	1.7

India	3	1.7	Spain	10	5.7
Indonesia	1	0.6	Sweden	3	1.7
Iran	3	1.7	Switzerland	3	1.7
Ireland	1	0.6	Turkey	1	0.6
Israel	1	0.6	UK	10	5.7
Italy	42	24.0	United States	11	6.3

112 (64.0%) students were from Europe, 27 (15.4%) from Asia, 16 (9.1%) from North America, 8 (4.6%) from Africa, 6 (3.4%) from Australasia, and 6 (3.4%) from South America.

**Survey Results.** Overall evaluation of the course.

Results based on 21 survey answers submitted between April 29 and May 3, 2021.

Items included in the survey:

Item 1. Achievement of goals

Item 2. Relevance of contents

Item 3. Balance (methodology, computing, and data applications)

Item 4. Quality of the materials

Item 5. Engaging audience

Item 6. Clarity in communicating concepts and methods

Item 7. Support during training

Item 8. Usefulness of the material provided

Number of answers and percentages (total number of answers: 21).

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
Very Good	16	16	15	14	12	16	10	13
Good	3	3	3	3	7	4	8	4
Reasonable	2	2	2	2	1	1	1	1
Deficiency	0	0	0	0	1	0	1	1
Total	21	21	20	19	21	21	20	19
Very good (%)	76.2%	76.2%	75.0%	73.5%	57.1%	76.2%	50.0%	68.4%
Good (%)	14.3%	14.3%	15.0%	15.8%	33.3%	19.5%	40.0%	21.1%
Reasonable (%)	9.5%	9.5%	10.0%	10.5%	4.8%	4.8%	5.0%	5.3%
Deficient (%)	0.0%	0.0%	0.0%	0.0%	4.8%	0.0%	5.0%	5.3%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Very Good & Good	90.5%	90.5%	90.0%	89.3%	90.4%	95.7%	90.0%	89.5%

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Report prepared and sent on May XXX, 2021, by Sara Taskinen, IASC-ERS Scientific Secretary.