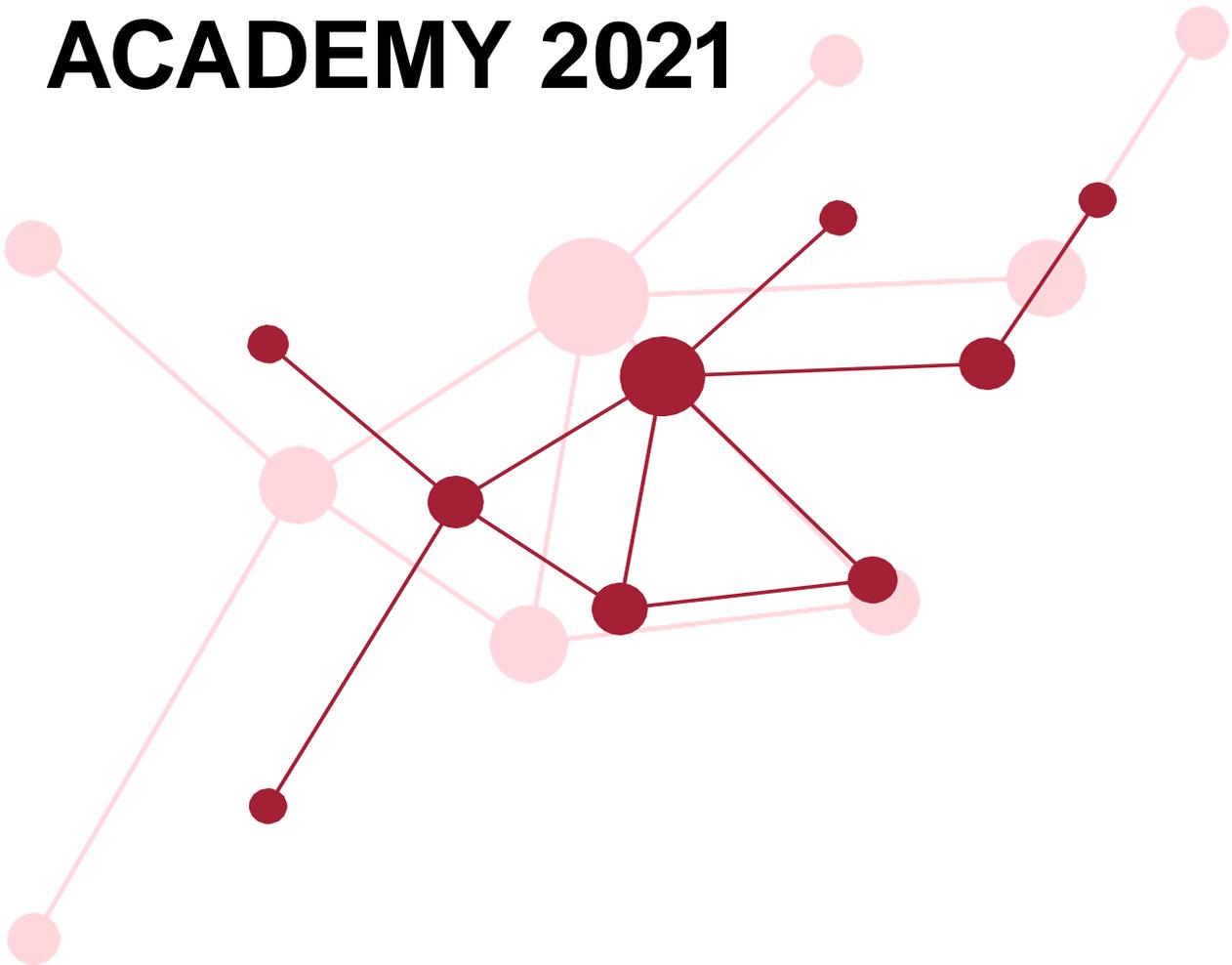




**TALENT HUB FOR SUPPLY CHAIN**

*Zaragoza Logistics Center*

# PhD SUMMER ACADEMY 2021



MIT GLOBAL  
SCALE NETWORK

**June, 21- July 01. 2021**

*ZLC (Zaragoza Logistics Center). Zaragoza, Spain*

# WELCOME TO THE PhD SUMMER ACADEMY 2021

It is with great pleasure that we invite you to attend the PhD Summer Academy 2021 at the Zaragoza Logistics Center, for an intensive period of learning, debating, and discovering the fundamental concepts and recent trends in Supply Chain Management.

We are happy to announce that we have successfully involved a group of leading Professors from prestigious institutions. Their track record speaks for itself. In addition, you will meet future colleagues and have a great time in Zaragoza, Spain. Hundreds of PhD students have joined this Summer Academy and benefited from meeting world renowned experts as well as participated in an enriching atmosphere of mutual exchange.

Hence, in addition to being introduced to methods and topics in the field by absolutely excellent professors, the PhD Summer Academy is a great opportunity to meet doctoral students from different institutions and exchange ideas. Although we expect applicants to come from different institutions, countries and backgrounds, one thing you all have in common is excellence. You will be selected to be part of a discussion forum of outstanding scholars in the area of supply chain management.

## Apply for admission!

We are looking forward to meeting and working with you, and to helping you during your stay in Zaragoza. We hope that you are as excited and eager as we are here in Spain to get this knowledge exchange journey started!



**Yasel Costa**

PhD Summer Academy Director  
Zaragoza Logistics Center



**Susana Val**

Director  
Zaragoza Logistics Center



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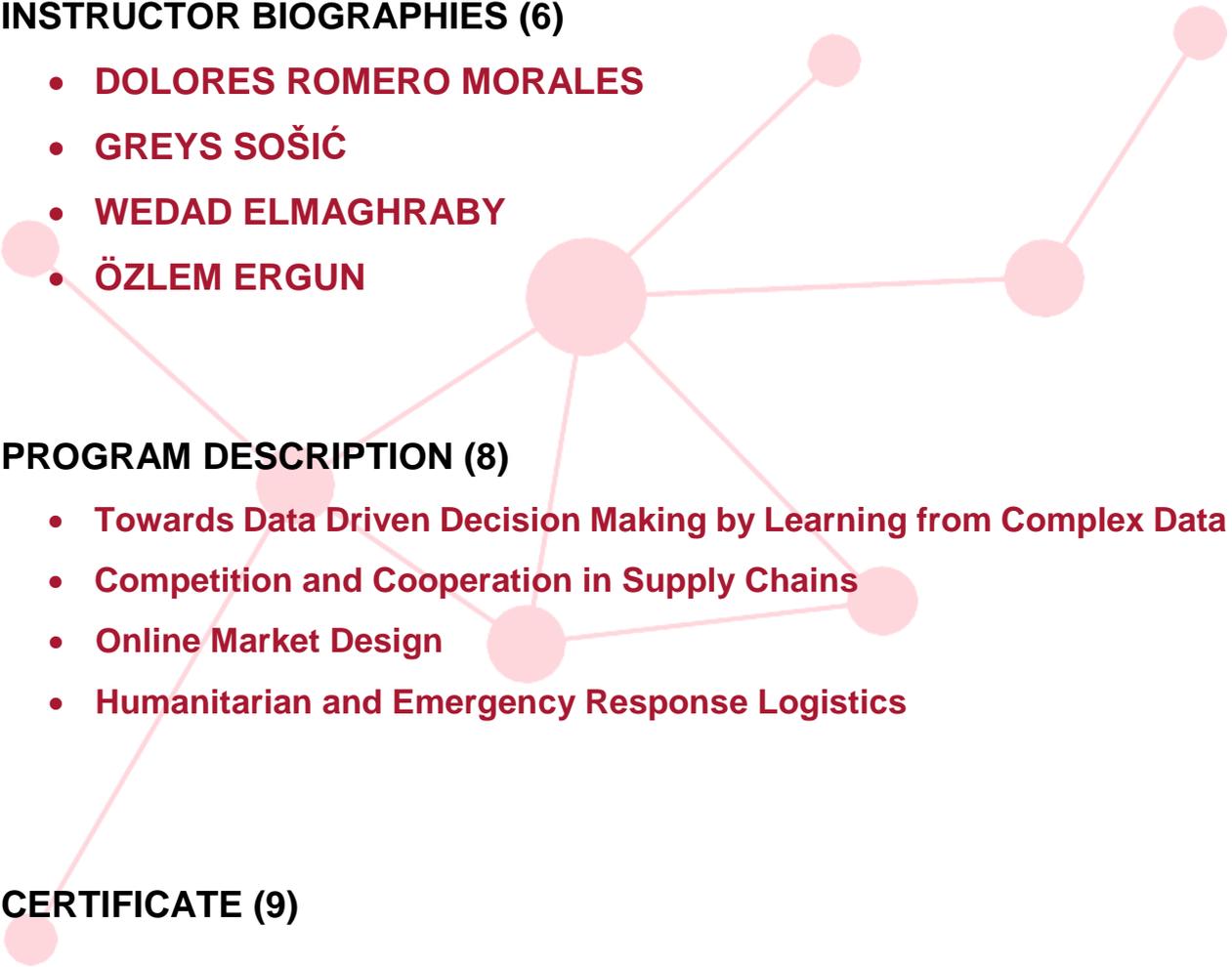
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- Competition and Cooperation in Supply Chains
- Online Market Design
- Humanitarian and Emergency Response Logistics

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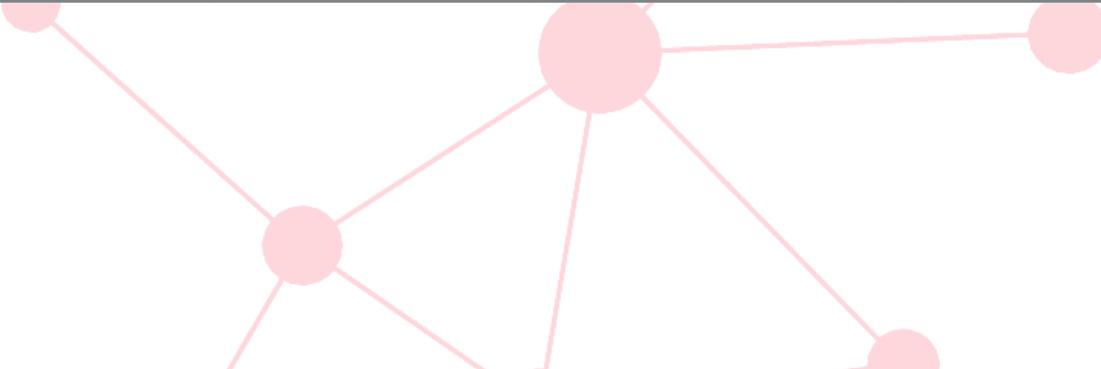
# CALENDAR

	JUNE					
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	21	22	23	24	25	26
09:00 12:00			Dolores Romero Morales			
10:00 13:00		Dolores Romero Morales		Greys Sošić	Greys Sošić	
13:00 13:30	Registration and Welcome coffee					
14:00 17:00	Dolores Romero Morales		Greys Sošić	Research seminar	Research seminar	
19:00 20:30	Zaragoza Tour					

	JUNE					
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	28	29	30	1	2	3
10:00 13:00		Wedad Elmaghraby	Wedad Elmaghraby	Wedad Elmaghraby		
14:00 17:00		Özlem Ergun	Özlem Ergun	Özlem Ergun		
				Certificate Ceremony		



PROFESSOR	UNIVERSITY	COURSE	START	END	HOURS
Dolores Romero Morales	Copenhagen Business School	Towards Data Driven Decision Making by Learning from Complex Data	21/6	23/6	9
Greys Sošić	Marshall School of Business University of Southern California	Competition and Cooperation in Supply Chains	23/6	25/6	9
Wedad Elmaghraby	Robert H. Smith School of Business University of Maryland	Online Market Design	29/6	01/7	9
Özlem Ergun	College of Engineering Northeastern University	Humanitarian and Emergency Response Logistics	29/6	01/7	9



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## INSTRUCTOR'S BIOGRAPHIES

### DOLORES ROMERO MORALES



Dolores Romero Morales is a Professor in Operations Research at Copenhagen Business School. Her areas of expertise include Supply Chain Optimization, Data Mining and Revenue Management. In Supply Chain Optimization she works on environmental issues and robustness. In Data Mining she investigates interpretability and visualization. In Revenue Management she works on large-scale network models. Her work has appeared in a variety of leading scholarly journals, including Management Science, Operations Research, INFORMS Journal on

Computing and Discrete Applied Mathematics, and has received various distinctions.

She has worked with and advised various companies on these topics, including IBM, SAS, KLM and Radisson Edwardian Hotels, as a result of which these companies managed to improve some of their practices. SAS has named her an Honorary SAS Fellow and member of the SAS Academic Advisory Board.

She is an Associate Editor of Omega and TOP.

In terms of funding, Dolores is the coordinator and scientific leader of the H2020 MSCA RISE NeEDS grant, Research and Innovation Staff Exchange Network of European Data Scientists, January 2019-December 2022.

Dolores joined Copenhagen Business School in 2014. Prior to coming to Copenhagen Business School she was a Full Professor at University of Oxford (2003-2014) and an Assistant Professor at Maastricht University (2000-2003). She has a BSc and an MSc in Mathematics from Universidad de Sevilla and a PhD in Operations Research from Erasmus University Rotterdam.

### GREYS SOŠIĆ



Greys Sošić holds a PhD from the University of British Columbia, and a master's and a bachelor's degree from the University of Zagreb, Croatia. Her research interests include supply chain management, sustainability, competition and cooperation in supply chains, with emphasis on coalition stability. Her work has been published in Management Science, Operations Research, M&SOM, and POMS. Greys is an Associate Editor for Management Science, MSOM, IIE Transactions, and POMS. She has received Dean's Awards for Research Excellence, MSOM Meritorious Service Award, Management Science Distinguished and Meritorious Service Award.

She has been teaching courses on supply chain management, sustainability, and sourcing.

## WEDAD J. ELMAGHRABY



Wedad J. Elmaghraby is a Professor of Operations Management and Management Science at the Robert H. Smith School of Business, University of Maryland, College Park. Her research interests are at the interface of operations management, economics and behavioral decision making. Her current research includes (1) online auctions in business-to-business secondary markets, (2) online platforms to promote sustainable business paradigms, (3) the role of returns in learning demand and (4) behavioral factors in business-to-business contract design. She has served on the editorial board of Management Science, M&SOM and POMS and as the President of the M&SOM Society, the Behavioral Operations Section, and POMS College of Behavior in Operations Management. Prior to joining the Smith School, she was on the faculty of the School of Industrial and Systems Engineering at Georgia Institute of Technology and NYU Stern School of Business in the Operations Management group. She currently serves as the ADVANCE professor at the Smith School and as co-director of the Smith Analytics Consortium.

## OZLEM ERGUN



Dr. Özlem Ergun's research focuses on the design and management of large-scale networks. She has applied her work on network design, management and collaboration to problems arising in the airline, ocean cargo and trucking industries. Recently, Dr. Ergun's work has been focused on the use of systems thinking and mathematical modeling in applications with societal impact. She has worked with organizations that respond to humanitarian crisis around the world, including: UN WFP, IFRC, CARE USA, FEMA, USACE, CDC, AFCEMA, and

MedShare International.



## PROGRAM DESCRIPTION

- **Towards Data Driven Decision Making by Learning from Complex Data**

**Professor:** Dolores Romero Morales, Copenhagen Business School

**Dates:** 21, 22, 23 June

**Course Description:**

Data Science aims to develop models that extract knowledge from complex data and represent it to aid Data Driven Decision Making. Data Science models should strike a balance between accuracy and interpretability. Interpretability is desirable, for instance, in medical diagnosis; it is required by regulators for models aiding, for instance, credit scoring; and since 2018 the EU extends this requirement by imposing the so-called right-to-explanation in algorithmic decision making. In this course, we first show that Mathematical Optimization is the natural tool to model the trade-off between accuracy and interpretability. Second, we show the latest advances on how to improve the accuracy of the popular classification and regression trees, seen as leaders in interpretability, and how to enhance the interpretability of black-box methods such as support vector machines. Finally, we illustrate an innovative data driven approach to model specification in regulatory benchmarking.

- **Competition and Cooperation in Supply Chains**

**Professor:** Greys Sošić, Marshall School of Business, University of Southern California

**Dates:** 23, 24, 25 June

**Course Description**

There are many instances in different business areas where firms compete in their primary markets, while they still cooperate in some of their activities to achieve economies of scale and/or scope. For instance, independent retailers can jointly place their orders to reduce their fixed ordering costs; manufacturers can jointly organize recycling of their products if EPR legislations are implemented; etc. This type of problems can be studied by combining elements from non-cooperative and cooperative game theory.

While cooperation among supply chain members should improve the overall performance of a supply chain, individual goals can induce one or more parties to make decisions that negatively impact the performance of the system as a whole. In cooperative settings, overall performance is

usually maximized when all parties act together (that is, form the grand coalition). However, some methods for allocation of profits/costs among collaborating parties can lead to situations in which individuals or groups can benefit by defecting and acting on their own, hence coalition stability is an important question in cooperative game theory. Stability of collaborative alliances is most commonly analyzed through the concept of the core. The core consists of allocation rules that yield a stable grand coalition (alliance of all players), as no set of players have an immediate incentive to defect from the grand coalition when gains are apportioned according to a core allocation. At the same time, the core suffers from myopia: it precludes the possibility that players and coalitions may consider the option that once they act (say, by forming a coalition), another coalition may react, and a third coalition might in turn react, and so on. It is not uncommon to observe defections and regrouping in markets before some stability is attained. One of the interesting features of dynamic stability is that it can identify stable structures even when static concepts conclude that there can be no stable outcomes. On the other hand, dynamic analysis can rule out the grand coalition as a candidate for stability even if the game has a nonempty core. When we forgo static concepts and assume a more realistic setting, in which the players consider possible consequences of their actions, we can obtain dramatically different results as to what are the likely stable structures, which can help companies in determining their operational strategies and in deciding whether to join an alliance or not.

In this course, we will cover the concepts from non-cooperative and cooperative game theory with application to problems in operations management. The readings will draw from peer-reviewed articles in the operations management literature.

- **Online Market Design**

**Professor:** Wedad Elmaghraby, Robert H. Smith School of Business, University of Maryland

**Dates:** 29, 30, June, 01 July

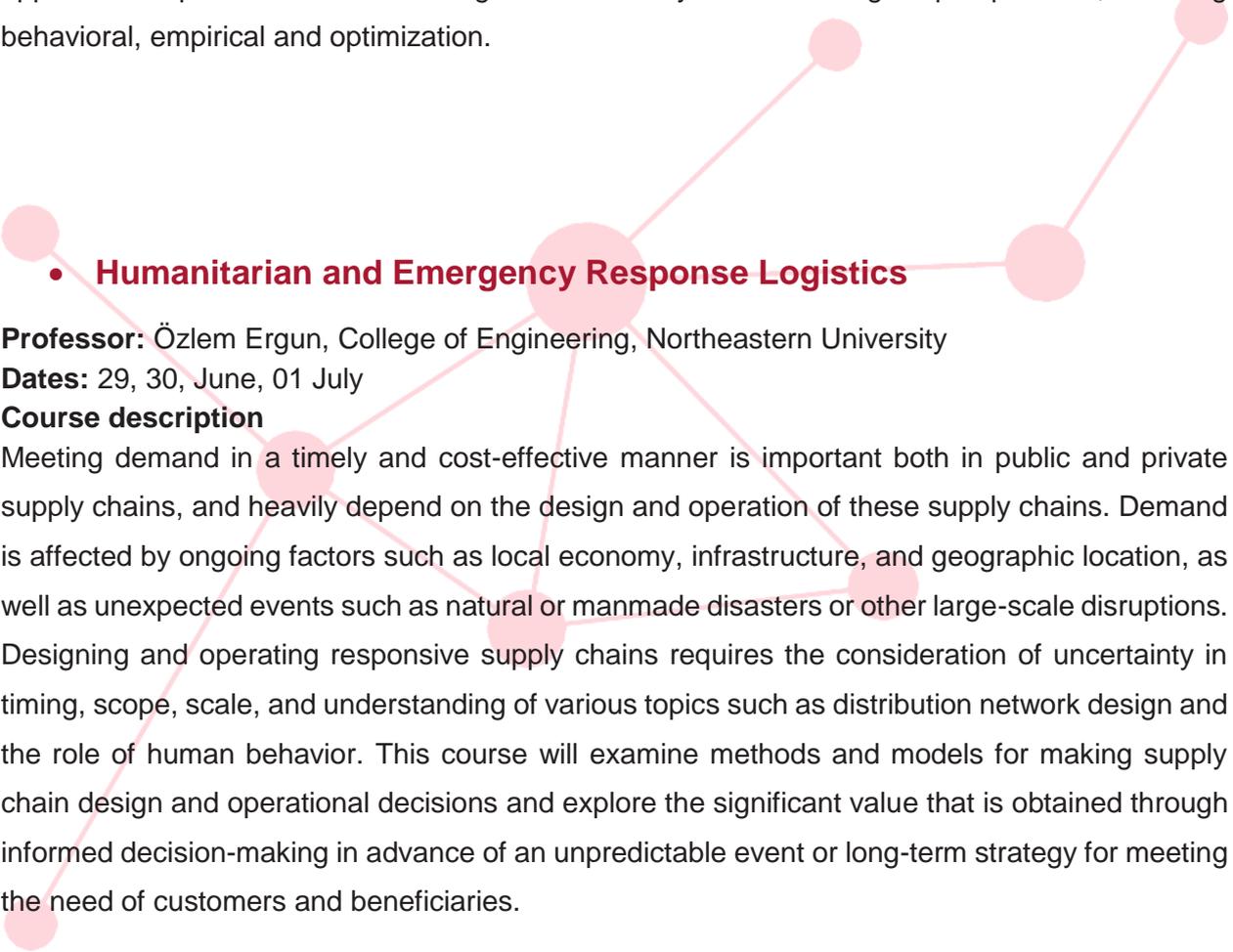
**Course Description**

The emergence of Internet-enabled platforms, such as Airbnb and Lyft, has highlighted that online marketplaces greatly reduce frictions that previously prevented buyers and sellers from connecting, thereby increasing the volume of trade in a number of markets. Typically, such platforms neither own nor directly control the goods involved in each transaction, but act as intermediaries. Thus, their success relies heavily on the design features of their respective marketplaces, e.g., the ways in which they organize and present information to the buyers and the timing with which they match and clear (portions of) the market.

Online platforms connect an increasing number of sellers to deeper pools of potential buyers, be they consumer or business, both domestic and foreign.

The opportunity for online intermediaries to create value has manifested itself not only in the cases exemplified by Airbnb and Lyft, but has also reshaped retail operations, particularly with regard to the handling and resale of liquidation inventory. The amount of inventory sold in these online platforms is highly variable. The uncertainty in supply coupled with the uncertain valuation of potential buyers, implies that online platforms face a familiar operational challenge: how to tailor their design so as to profitably match supply with demand.

In this seminar, we will cover a range of papers that address online market design at a general level and then the specific challenges that face online B2B liquidation auctions. Papers will approach the problem of market design from a variety of methodological perspectives, including behavioral, empirical and optimization.



- **Humanitarian and Emergency Response Logistics**

**Professor:** Özlem Ergun, College of Engineering, Northeastern University

**Dates:** 29, 30, June, 01 July

**Course description**

Meeting demand in a timely and cost-effective manner is important both in public and private supply chains, and heavily depend on the design and operation of these supply chains. Demand is affected by ongoing factors such as local economy, infrastructure, and geographic location, as well as unexpected events such as natural or manmade disasters or other large-scale disruptions. Designing and operating responsive supply chains requires the consideration of uncertainty in timing, scope, scale, and understanding of various topics such as distribution network design and the role of human behavior. This course will examine methods and models for making supply chain design and operational decisions and explore the significant value that is obtained through informed decision-making in advance of an unpredictable event or long-term strategy for meeting the need of customers and beneficiaries.

Class sessions will combine lectures, interactive exercises, and case studies.

# CERTIFICATE

The PhD Summer Academy 2021 program is administered under the MIT-Zaragoza International Logistics Program, one of the select MIT educational and research partnerships. Upon completion of all courses to which you have enrolled, you will be awarded a certificate stating that you have completed a PhD summer course under the MIT- Zaragoza Program.



PhD Summer Academy June 2019

*"I was invited to contribute to the PhD summer academy at ZLC with a course on Health Care Logistics. Already when I entered the ZLC, I was fascinated by the atmosphere. The lecturing room was modern and perfectly designed for participative teaching. The participating students came from all over the world with different backgrounds and were extremely open to the topic of the course. We had three great days together and we had fruitful discussions on a wide range of health care topics. Moreover, I had the chance to take part in some talks where PhD students presented their dissertation project. All participants (including me) learned a lot and I can only recommend everybody to teach or participate in a PhD summer academy at ZLC". Stefan Nickel, Professor Karlsruhe Institute of Technology (KIT), Germany*

## **PhD Summer Academy 2021**

MIT-Zaragoza International Logistics Program

Zaragoza Logistics Center

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### **Yasel Costa**

PhD Summer Academy Director

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### **Beatriz Vergara Pardo**

PhD Summer Academy Admissions Office

Registration, accommodation, visa requirements

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### **Miguel Labordeta**

IT Department: IT support, access cards to the ZLC building and facilities

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