

INTERNATIONAL SUMMER SCHOOL
JULY 22ND- JULY 31ST, 2019 - NEW YORK



WORLD HERITAGE STUDIES



SAPIENZA
UNIVERSITÀ DI ROMA



United Nations
Educational, Scientific and
Cultural Organization



UNITWIN Network in
Global Pharmacy
Education Development

Urban resilience in a changing world: energy, safety and wellbeing challenges

Opening workshop – July 22nd, 2019

NYU Tandon School of Engineering, CUSP Center, NYC

Urban environment hosts more than 60% of the total world population worldwide and in less than 30 years almost 80% of the total population is expected to live in anthropized urban areas, increasingly affected by climate change and seismic hazards. Urban resilience to environmental and structural risks and damages has become an urgent issue to be addressed by means of tailored strategies involving the whole multidisciplinary engineering-based skills, such as structural health monitoring together with environmental monitoring of the built environment. This course will bridge these key topics by means of an exhaustive comprehensive and consistent approach, giving the students the proper tools to focus on urban resilience, structural safety and wellbeing in the indoors and outdoors affected by climate change related forcing. Acknowledged scientists from NYC area and important universities will participate as lectures with their students. Field visits and experimental activities in Manhattan will be carried out during the program weeks.

Full Course Program

Wellbeing in the urban environment

Urban climate issues and outdoor wellbeing of urban population

Urban canopy, big data analysis, citizen science, mesoscale climate assessment

Mitigation strategies for urban climate change resilience

Smart technologies for structural safety

Fundamentals of structural identification for SHM

Fundamentals of SHM and smart structures

Smart sensing technologies for SHM

Total number of lecturing hours: 48 in 10 days

2 outdoor visits in construction fields and urban monitoring areas

Invited lecturers: Elie Bou Zeid (Princeton University), Simon Laflamme (IOWA State University), Prathap Ramamourthy (CCNY), Austin Downey (University of South Carolina), Francesco Cappa (LUISS Guido Carli), Gian Marco Revel (Politecnica delle Marche), Marco Giometto (Columbia University)

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Organized by H2CU

- For more info, please contact:

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New York – July 22nd – August 2nd 2019 SUMMER SCHOOLS ON WORLD CULTURAL HERITAGE STUDIES

NYU Tandon School of Engineering
CUSP Center, NYC

Urban resilience in a changing world: energy, safety and wellbeing challenges

Opening workshop – July 22nd, 2019 - 09:00 am – 5:00 pm

Course presentation, Logistics and final assignment (A.L. Pisello - UNIPG)

The Urban resilience issue from multiperspective research eyes (A.L. Pisello - UNIPG)

Urban resilience for citizens' wellbeing (F. Rosso – UNIROMA1)

Urban resilience and big data analytics in New York (M. Ghandehari – NYU CUSP)

Cultural heritage resilience and artwork preservation (M. Leona - ? – MET MUSEUM)

Urban resilience in citizen science (F. Cappa – LUISS Guido Carli)

EU research and tech transfer toward resilient built environment (G.M. Revel - POLIMARCHE)

Urban resilience for structural safety and security (F. Ubertini - UNIPG)

Urban resilience for cultural heritage preservation (M. Giofrè - UNIPG)

Urban resilience in dynamic systems (M. Porfiri - NYU)

Closing remarks (F. Ubertini - UNIPG)



Organized by H2CU - For more info, please contact the scientific coordinators: Filippo Ubertini filippo.ubertini@unipg.it (Univ. Perugia)
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Weekly Program 1/2

LECTURES
1-2

by prof. Massimiliano Giofrè (University of Perugia) July 23rd, 2019 09:00 am – 1:00 pm
Fundamentals of structural identification for SHM
Case studies in ancient bridge architectures in Italy

LECTURES
3

by prof. Anna Laura Pisello (University of Perugia) July 24th, 2019 09:00 am – 11:00 am
Fundamentals of urban wellbeing: Urban Heat Island and Urban Noise Island
Indoor and Outdoor microclimate assessment and multidimensional comfort theories

LECTURE
4

by prof. Gian Marco Revel (Politecnica delle Marche) July 24th, 2019 11:00 am – 1:00 pm
New sensing techniques for indoor wellbeing and environmental sustainability
in the built environment: a European perspective

LECTURE
5

by prof. Elie Bou Zeid (Princeton University) July 25th, 2019 09:00 am – 11:00 am
Urban canopy models and urban climate studies in the US
Heat waves and energy implications

LECTURE
6

by prof. Prathap Ramamurthy (CUNY) July 25th, 2019 11:00 am – 1:00 pm
Influence of urban materials and morphology on the surface energy
budget and air quality: investigations in New York City

LECTURES
7-8

by dr. Federica Rosso (Sapienza Università di Roma) July 26th, 2019 09:00 am – 1:00 pm
Novel and traditional materials for energy retrofit and wellbeing in urban areas:
Building envelope solutions and performance analysis



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Weekly Program 2/2

LECTURES
1-2

by prof. Filippo Ubertini (University of Perugia) July 29th, 2019 09:00 am – 1:00 pm
Fundamentals of SHM and smart structures
Smart sensing technologies for SHM

LECTURE
3

by prof. Simon Laflamme (Iowa State University) July 29th, 2019 2:00 pm – 4:00 pm
Smart multifunctional materials and techniques for SHM of
infrastructures and wind energy systems

LECTURE
4

by Prof. Austin Downey (University of South Carolina) July 29th, 2019 4:00 pm – 6:00 pm
Solutions for Mesoscale monitoring

LECTURE
5

by prof. Marco Giometto (Columbia University) July 30th, 2019 09:00 am – 11:00 am
Geophysics, engineering, biology, and energy technologies
implications of urban climate change

LECTURE
6

by prof. Ryan Wang (Northeastern University) July 30th, 2019 11:00 am – 01:00 pm
Urban-human resilience and energy saving
during climate change related events

LECTURE
7

by dr. Francesco Cappa (LUISS Guido Carli) July 31st, 2019 09:00 am – 11:00 am
The role of big data and citizen science in innovation
practice toward environmental sustainability

LECTURE
8

by dr. Federica Rosso, prof. Marco Ferrero (Sapienza Università di Roma)
July 31st, 2019 11:00 am – 1:00 pm
Environmental degradation of architectures due to climate change,
Building conservation issues and retrofit strategies

LECTURE
9

by dr. Anna Laura Pisello (University of Perugia) July 31st, 2019 2:00 pm – 4:00 pm
Microclimate analysis in urban areas: cultural heritage preservation,
tourism resilience, wearable sensing techniques for citizens' active participation

LECTURE
10

by dr. Anna Laura Pisello and dr. Federica Rosso July 31st, 2019 4:00 pm – 6:00 pm
Presentation of final assignments

Visits to experimental fields and construction fields (+4h on august 1st and 2nd around NYC area) - TBD

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