



RUDN
university



International Union of Soil Sciences

NYC Urban Soils Institute



3 MUGIS 2019 SUMMER SCHOOL

ANTHROPOGENIC AND NATURAL SOIL LANDSCAPES IN EUROPEAN RUSSIA: FROM SEA TO SEA

What is 3MUGIS?

The 3MUGIS summer school is an annual event, which addresses relevant contemporary environmental consequences and opportunities of urbanization with special emphasis on soil functions. The event is organized under the umbrella of the International Union of Soil Science (IUSS), RUDN University (Russia) and the Urban Soil Institute (USA) with strong cooperation from universities, institutions and research teams from around the world.

What is new in 3MUGIS 2019?

Five days of focused on-campus training in skills relevant to the sites visited will occur at RUDN University in Moscow city. They will be followed by an expanded two-week field tour from the Arctic Ocean and Barents Sea (Teriberka village town, 69N; 35E) to the Azov Sea (Taganrog town, 47N; 38E). The tour will give students a unique overview of the natural and cultural diversity of European Russia. Five zones (subarctic, taiga, deciduous forest, forest-steppes and steppes) will be studied in regard to key issues of urban development, including industrial pollution, forest management, agricultural development, and urban-rural interactions. Urban soils and green infrastructure at each of the region will be studied in comparison to natural references. Conventional field descriptions and classification will be amplified by advanced techniques of in-field analysis. Lecture and field parts

will consistently follow the problem-oriented framework to be presented at the final team and individual projects, and a short quiz will occur after each field tour stop. that covers topics most relevant to that stop.

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SPEAKERS



Dr. Elvira Dovletyarova



Tatiana Morin



Dr. Viacheslav Vasenev



Dr. Tatiana Prokofieva



Dr. Richard Shaw



Prof. Jean Louis Morel



Prof. Andrey Smagin



Dr. Maha Deep

State Soil Scientist USDA-Natural Resources Conservation Service (USA)

e-mail: richard.shawnj.usda.gov

Laboratory of Soils and Environment Université de Lorraine (France)

e-mail:jean-louis.morel@univlorraine.fr

Soil Science Faculty LMSU (Moscow, Russia)

e-mail: smagin@list.ru

Department of Earth and Environmental Sciences City University of New York - Brooklyn College, CUNY USA)

e-mail: mahadeeb.y@gmail.com,

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SPEAKERS



Ilya Mochalov



Dr. Giovanna Sala



Dr. Luca Belotti



Dr. Alex Yaroslavtsev



Prof. Andrea Vannini



Dr. Olga Gavrichkova



Dr. Andrey Dolgikh



Prof. Harold Van Es
School of Integrative Plant Science Soil and Crop Sciences Section College of Agriculture and Life Science Cornell University (USA)
email: hm1@cornell.edu



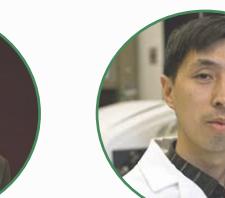
Prof. Yakov Kuzyakov



Dr. Kristina Ivashchenko



Prof. Jack Caravanos



Prof. Zhongqi Cheng
Earth and Environmental Sciences Brooklyn College of The City University of New York (USA)
e-mail: zcheng@brooklyn.cuny.edu



Prof. Howard Mielke



Anya Paltseva



Olga Romzaykina



Dr. Pavel Konstantinov
Geography Faculty Meteorological observatory Lomonosov Moscow State University (Russia)
e-mail: kostadini@mail.ru

Contacts

Dr Elvira Dovletyarova (RUDN)

Dovletyarova_ea@rudn.university

Dr Viacheslav Vasenev (RUDN)

Vasenev_vi@rudn.university



Prof. Riccardo Valentini



Dr. Diego Giuliarelli



Irina Veretelnikova



Dr. Michael Leuchner

Tuscia University (Italy) RUDN University (Russia) Peace Nobel Prize Laureate as a member of IPCC

e-mail: rik@unitus.it

Department of Innovation of Biological Systems, Food and Forestry DIBAF Tuscia University (Italy)

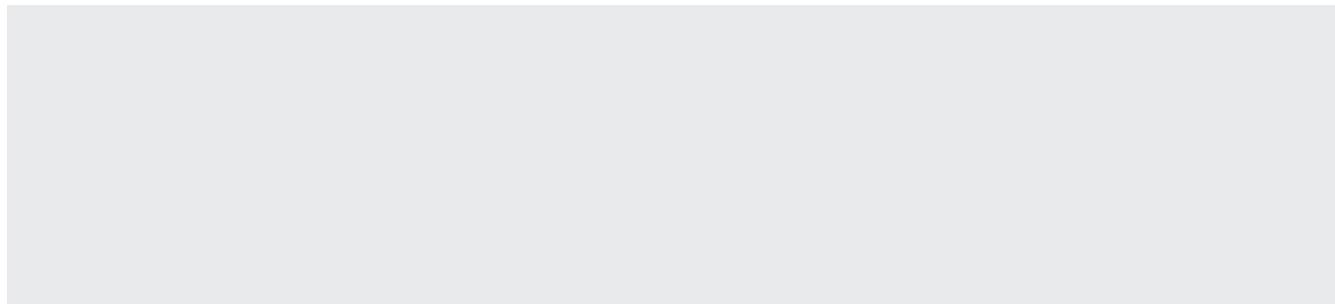
e-mail:dgiuliarelli@unitus.it

Department of ecology RSAU-MTA named after K.A. Timiryazev Department of Landscape design and sustainable ecosystems, RUDN University (Russia)

e-mail: veretelnikovaomsk@ yandex.ru

Springer Publishing Editor Physical Geography, Climate, Economic Geography, Historical Geography & World Regional Geography Springer Dordrecht

e-mail:michael.leuchner@springer.com



Liliia Alaeva

Docent of Department of Ecology and Land resources.
Voronezh State University.

PhD in biology. Member of European Geoscience Union. Scientific interests are forest soil formation, forest ecosystems, ecological state of forest soils, soil cover of floodplain terraces.



Belik Anton

Assistant of Department of Ecology and Land resources.
Voronezh State University.

PhD in biology. Member of European Geoscience Union. Scientific interests: GIS in ecology, geostatistics, agroecology, spatial variety of soil fertility, ecological state of floodplain and terrace lakes.



Yulia Sotnikova

PhD, Head of Department.
Department of legal environmental expertise, "EcoCenter" LLC.

The main research interests are related to environmental protection and risk assessment with a special focus on landscapes of Central Chernozemic region.



Dmitrii Sarzhanov

PhD, Expert.
Department of legal environmental expertise, "EcoCenter" LLC.

The main research interests are related to biogeochemical interaction between soils, vegetation and atmosphere in urban ecosystems.



Elena Negrobova

Assistant of Department of Ecology and Land resources.
Voronezh State University.

Deputy Director of the Voronezh regional center for waste management. Scientific interests: fauna and ecology of soil animals and solid waste management.



Ivan Vasenev

Professor and Head of Ecology Department.

Russian State Agrarian University – Moscow Timiryazev Agricultural Academy.

Expert in Agroecology, Environmental and Soil Science with especial interest in soil ecology and dynamics, land quality evaluation and land-use planning, smart-system of environmental monitoring and agroecological management, DSS for best available farming practice, Podzoluvisol and Chernozem conservation, soil erosion and degradation processes control, soil cover patterns and within-field variability of soil fertility and crop yield.



Natalya Saltan

Candidate of biological sciences, research scientist of laboratory of plant introduction and acclimatization.

Polar-alpine botanical garden-institute of Kola Science Centre of RAS.

Professional interests involve studying functions and ecosystem services of urban soils, their spatial variability and temporal dynamics. A specific focus in research is given to pollution of urban soils by heavy metals and studuing of the chemical composition of plants.



Marina Slukovskaya

PhD, Senior Researcher.

Laboratory of geo-inspired technologies and environmental safetyof the Arctic region, Kola Science Centre, Russian Academy of Sciences, Apatity, Russia.

Ecologist, plant biogeochemist.

Main scientific interest: Technosoldevelopment and remediation of metals polluted industrial barrens in the Arctic.



Maria Korneykova

Head of Laboratory.

Institute of North Industrial Ecology Problems – Subdivision of the Federal Research Centre "Kola Science Centre of Russian Academy of Science".

Microbiologist, microbial ecologist, aeromycologist. Research is focused on qualitative (biodiversity and structure) and quantitative (abundance, biomass) indicators of microbial communities in background and contaminated soils, particularly in Arctic and Subarctic zones.



Tatiana Deviatova

Professor and Head of Department of Ecology and Land resources.

Voronezh State University.

Director of the autonomous non-commercial organization "Voronezh Regional Center for Waste Management", the expert The Federal Service for Supervision of Natural Resources, the Russian Federation, Head of the Public Council on Ecology of the Voronezh region. ecological state of urban soils and chernozems and dynamics of their biological activity under the influence of anthropogenic factor.



Sergey Gorbov

Professor, Head of Laboratory of Biogeochemistry .

Southern Federal University, Academy of Biology and Biotechnology SFedU.

Research of natural and anthropogenically transformed soils of southern Russia. Study of the specificity of the accumulation of organic matter in urban soils. Investigation of soil pollution in urban areas.

CONDITIONS

3MUGIS-2019 summer school will host international groups up to 35 participants. Participation fees will cover accommodation, two meals per day, traveling inside Russia and all materials necessary for courses. The participation fee is anticipated to be 1,200 euro. All of the foreign participants will also receive visa support and any other assistance with organization of their trip to Moscow.

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PARTNERS



RUDN UNIVERSITY



MOSCOW CITY GOVERNMENT CAPACITY BUILDING PROJECTS



RUSSIAN TIMIRYAZEV STATE AGRARIAN UNIVERSITY



BROOKLYN COLLEGE



INSTITUTE OF PHYSICOCHEMICAL AND BIOLOGICAL PROBLEMS IN SOIL SCIENCE



CENTRAL FOREST BIOSPHERE RESERVE



INTERNATIONAL UNION OF SOIL SCIENCE



NYC Urban Soils Institute

URBAN SOIL INSTITUTE



RUSSIAN ACADEMIC EXCELLENCE PROJECT



Voronezh State University



KOLA SCIENCE CENTER RUSSIA TECHNICAL UNIVERSITY BERLIN
ACADEMY OF SCIENCES



PAN-EURASIAN EXPERIMENT

ГЕОГРАФИЧЕСКИЙ ФАКУЛЬТЕТ
МГУ имени М.В. Ломоносова

GEOGRAPHY FACULTY OF LOMONOSOV MOSCOW STATE UNIVERSITY



Организация научных и деловых мероприятий



SOUTH STATE UNIVERSITY

3MUGIS-2019 SUMMER SCHOOL PROGRAM

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Field summer school

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Peoples' Friendship University of Russia

Peoples' Friendship University of Russia (PFUR) is an international classical university. Preparation of the highly qualified experts in various professional fields, educating young people with excellent career perspectives worldwide and joining people of different nationalities, races and religions with knowledge – are the key priorities of PFUR.

Peoples' Friendship University of Russia was founded on February 5, 1960 by Governmental decision of USSR. February 22, 1960 University was named after Patrice Lumumba – a symbol of African nations' fight for independence.

PFUR is governed by the rector Professor Vladimir Philippov, a doctor in physics and mathematics, an academician of Russian Academy of Sciences and a chairman at Higher Attestation Commission in Ministry of Education of Russian Federation. Near 25 thousands of students study in the University and more than 5 thousands of them are students from foreign countries. They represent 139 countries of the world. Students can choose among 30 bachelor programs, 33 specialties and 91 master programs. More than 25 thousands of students attend the program of additional education in University.

PFUR today is a dynamically developing research and educational centre, including 9 faculties and 5 institutions.

Agrarian-technological institute, organized on July 1st 2015 on the base of Agrarian faculty, is a key research and scientific subdivision of PFUR, qualifying experts in soils science, environmental science and sustainable development of anthropogenic ecosystems. More than thousand of bachelors, master and PhD students study at the four institute departments each year. Applied research and projects are carried out using the facilities of the laboratory of food quality certification, the cadastral and land evaluation centre and the landscape architecture and design studio. International collaboration is among the main priorities of the institute. Four master programs in English are provided, including a double-diploma master program with Tuscia University (Italy) "Management and design of urban green infrastructure". Agrarian-technological institute is a regular participant of student and staff mobility programs with the Netherlands, Italy, Germany, Austria, Greece, China, USA, African and South American countries.

3MUGIS-2019 SUMMER SCHOOL PROGRAM

Time/Activity/Place

• Day 1 – July 21 (Sunday)

15:00–19:00 Registration and accommodation in the RUDN campus, ATI reception

19:00–23:00 Ice-breaking party



• Day 2 –July 22 (Monday)

10:30–11:00 L0 Introduction to MUGIS V.Vasenev (RUDN, Russia), Hall 2 ATI

11:00–12:00 L1 Soils and plants in urban environment V.Vasenev (RUDN, Russia), Research Council Hall

12:00–13:00 P1 Interactions between air and soil pollution V.Vasenev (RUDN, Russia), Research Council Hall

13:00–14:00 Lunch

14:00–15:00 L2 Classification of urban soils (RF,US,WRB) T.Prokofieva (LMSU, Russia) & R.Shaw(USI, USA), Research Council Hall

15:00–16:00 P2 Classification (soil judgement) T.Prokifieva (LMSU, Russia & R.Shaw, USI, USA), Research Council Hall

16:00–16:30 Coffee-break

16:30–18:00 L3 SUITMAS: formation, functions and ESSs J.L. Morel (UL, France), Research Council Hall

18:00–19:00 P3 Assessing SUITMA's ESSs J.L. Morel (UL, France), Research Council Hall

19:00–21:00 Sport/outdoor activity, RUDN Campus



• Day 3 – July 23 (Tuesday)

10:00–11:00 L5 Soil constructions: from theory to practice A. Smagin (LMSU, Russia), Hall B

11:00–12:00 L6 Modeling heat and water fluxes in soil constructions A. Smagin (LMSU, RU) & M. Deeb (RUDN, CUNY, USA), Hall B

12:00–13:00 P4 Estimation of soil hydrological properties A. Smagin (LMSU, RU) & M. Deeb (RUDN, CUNY, USA), Hall B

13:00–14:00 Lunch

14:00–15:00 L7 Modeling surface runoff from grey urban infrastructure T. Nehls (TUB, Germany), Hall B

15:00–16:00 P5 Modeling the water balance for green infrastructures T. Nehls (TUB, Germany), Hall B

16:00–16:30 Coffee-break

16:30–18:00 L8 Remote sensing for monitoring and modeling GI D. Giuliarelli (UNITUS, Italy), Hall B

18:00–19:00 P6 Modeling dynamics of urban forests by RS I. Veretelnikova (RUDN, Russia), Hall B

19:00–20:00 Workshop "How to write a scientific paper?" M. Leuchner (Springer, Netherlands), Hall B

20:00–21:00 Pizza time



• Day 4 – July 24 (Wednesday)

09:00–10:00 Transfer to Zaryadie park

10:00–11:00 L9 Tree Talkers: new generation technique for tree monitoring R. Valentini (RUDN, RU/ UNITUS, Italy), Zaryadie park. Conference hall.

11:00–12:00 L10 Innovation in landscape architecture I. Mochalov (Mochalov Design Studio), Zaryadie park. Conference hall.

12:00–13:00 P7 Reading and interpretation monitoring data L. Belelli (FM, Italy), G. Sala (RUDN, Russia) & A. Yaroslavtsev (RSAU, Russia), Zaryadie park.

13:00–14:00 Lunch

14:00–15:00 L11 Visual tree assessment A. Vanini (UNITUS, Italy), Zaryadie park

15:00–16:30 P8 Comparison VTA and monitoring results O. Fareeva (RUDN, Russia) & A. Yaroslavtsev (RSAU, Russia), Zaryadie park

16:30–18:00 L12 C stocks and GHG emissions in urban soils S. Castaldi (USC, Italy) & V. Vasenev (RUDN, Russia), Zaryadie park. Conference hall

18:00–19:00 P9 Monitoring soil and plant respiration in situ O. Gavrichkova (CNR, Italy), Zaryadie park

19:00–20:00 Workshop "Cultural layers of ancient Moscow" A. Dolgikh (IG RAS, Russia), Zaryadie park

20:00–22:00 Walking down town

• Day 5 – July 25 (Thursday)

10:30–11:00 L13 Soil health: concept and approaches to assess H. Van Es (CU, USA), Hall C

11:00–12:00 L14 Soil health: possible implementation for urban areas H. Van Es (CU, USA), Hall C

12:00–13:00 P10 Soil health assessment H. Van Es (CU, USA), Hall C

13:00–14:00 Lunch

14:00–15:00 L15 Advances in analysis of soil-plant interactions Y. Kuzyakov (GOE, Germany), Hall C

15:00–16:00 P11 Microbial indexes of soil health K. Ivashchenko (RAS, Russia), Hall C

16:00–16:30 Coffee-break

16:30–18:00 L16 Soil pollution and human health H. Mielke (TU, USA), Hall C

18:00–19:00 L17 Assessing soil pollution by heavy metals Z. Cheng (CUNY, USA), Hall C

19:00–20:00 P12 Screening soil pollution and assessing pollution indexes A. Paltseva (USI, US) & O. Romzaykina (RUDN, RU)

20:00–22:00 "Moscow by night" bus-excursion)

• Day 6 – July 26 (Friday)

10:00–11:00 L15 Urban climate: from local to global P. Konstantinov (LMSU, Russia), Room 423



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11:00–12:00 PN0 Anthropogenic soils and landscapes from sea to sea V. Vasenev (RUDN, RU)
12:00–12:30 PN1 Subarctic environment P. Konstantinov (LMSU, RU)
12:30–13:00 PN2 Natural and urban forests of boreal climate I. Vasenev (RSAU, RU)
13:00–14:00 Lunch
14:00–14:30 PN3 On the way from woods to steppes K. Ivashchenko (RAS, RU)
14:30–15:00 PN4 Visit to the soil Zar I. Vasenev (RSAU, RU)
15:00–15:30 PN5 Russia South S. Gorbov (SSU, RU)
15:30–16:00 Farewell to Moscow E. Dovletyarova & T. Morin
16:00–16:30 Coffe-break
16:30–21:00 Packing for the field tour and free time



FIELD TOUR

• Day 7 – July 27 (Saturday)

04:30 AM Check-in out
08:00–10:00 Flight Moscow SVO – Murmansk
10:00–12:00 Bus transfer to Teriberka village at the shore of Arctic Ocean
12:00–13:00 Sightseeing in Teriberka
13:00–14:00 Lunch
14:00–16:00 Bus transfer to Murmansk
16:00–18:00 Green Infrastructure of a polar city
18:00–20:00 Sightseeing in Murmansk
20:00–22:00 Dinner at Karavella Hotel



• Day 8 – July 28 (Sunday)

08:00–09:00 Breakfast in hotel
09:00–09:30 Departure from hotel
09:30–11:00 Bus transfer to Monchegorsk



11:00–13:00 Green Infrastructure of an industrial polar town

13:00–14:00 Lunch

14:00–16:00 Remediated industrial barrens

16:00–17:30 Zonal soils of Kola Peninsula

17:30–19:00 Lapland natural reserve

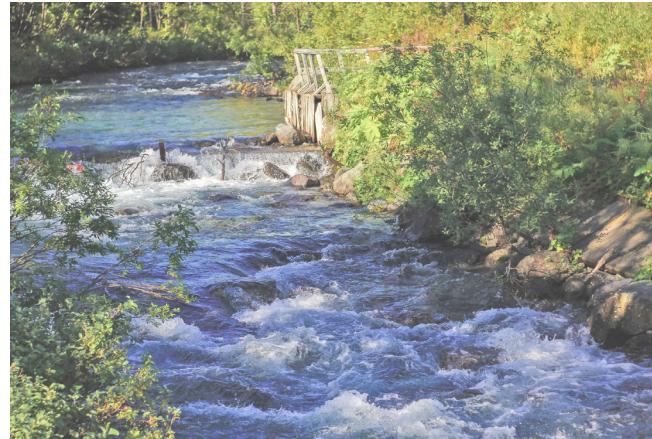
19:00–20:00 Bus transfer to Apatiti

20:00–22:00 Dinner and accomodation

• Day 9 – July 29 (Monday)

08:00–09:00 Breakfast in hotel

09:00–09:30 Departure from hotel



09:30–13:00 Alpine botanical garden in Khibiny mountains. Soil vertical zonality in Subarctic climate

13:00–14:00 Lunch

14:00–17:30 Urban soils and green infrastructure of Apatity town

17:30–19:00 Museum of rocks in Kirovsk

19:00–22:00 Barbecue at Tik-Guba

• Day 10 – July 30 (Tuesday)

09:00–10:30 Breakfast, closing lecture "Urban and technogenic landscapes of Russian Arctic" by M. Slukovskaya and M. Korneykova

10:30–11:00 Departure from hotel

11:00–14:00 Flight Apatiti – Moscow SVO

14:00–17:30 Bus transfer Moscow SVO – Central Forest Natural Reserve

17:30–18:30 Museum of the Forest Natural Reserve

18:30–20:00 Sport activities

20:00–22:00 Banya (Russian Sauna)

• Day 11 – July 31 (Wednesday)

09:00–09:30 Breakfast

09:30–13:00 Soils and landscapes of South taiga subzone (Albic podzolic soils and windfall soil complexes)

13:00–14:00 Lunch (in field)

14:00–17:30 C balance in fallowland ecosystems – long-term experiment of land abandonment

17:30–21:00 Barbecue at the lake bank

• Day 12 – August 1 (Thursday)

08:00–09:00 Breakfast, departure

09:00–13:00 Bus transfer Central Forest Reserve – Russian State Agrarian University

13:00–14:00 Lunch

14:00–16:00 Environmental monitoring station at urban farm in Moscow megapolis

16:00–17:30 Soil museum named after V.R. Williams

17:30–19:00 Closing lecture "Natural and anthropogenic soils and landscapes of South taiga subzone" by Prof. I. Vasenev

19:00–22:00 Barbecue in urban forest

22:00–23:00 Bus transfer to Pushchino-on-Oka town, accommodation in Academic hotel

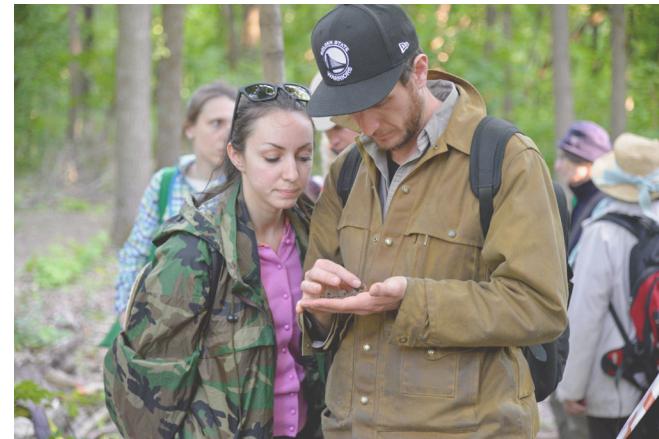
• Day 13 – August 2 (Friday)

08:00–09:00 Breakfast in hotel

09:00–11:00 Urban soils in Pushchino town

11:00–13:00 City tour and visit to observatory

13:00–14:00 Forest landscapes at the bank of Oka river



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14:00–15:00 Lunch
15:00–17:30 Prioksko-Terrasny biosphere Reserve and Aurochs (European bison) nursery
17:30–23:00 Train transfer from Serpukhov to Kursk
• Day 14 – August 3 (Saturday)
08:00–09:00 Breakfast in hotel
09:00–09:30 Departure from hotel
09:30–13:00 Forest steppe landscapes and Chernozems, visiting Central Chernozemic Reserve
13:00–14:00 Lunch
14:00–17:00 Technosols on Chernozems – monitoring sites in industrial area of Kursk city
17:00–19:00 Gray forest soils (Dark Phaeosems) in the urban forest
19:00–23:00 Dinner and walk downtown
• Day 15 – August 4 (Sunday)
08:00–09:00 Breakfast in hotel
09:00–09:30 Departure from hotel
09:30–13:00 Visit to Kursk Magnetic Anomaly – the largest mining area of metal ore
13:00–14:00 Lunch
14:00–17:00 Visit to the Korennaya Hermitage holly place. Bathing in cold springs (voluntarily)
17:00–19:00 Dinner
19:00–22:00 Bus transfer Kursk–Voronezh
• Day 16 – August 5 (Monday)
09:00–09:30 Breakfast in hotel
09:30–10:00 Departure from hotel
10:00–13:00 Natural and urban soils of Voronezh parks and botanical garden
13:00–14:00 Lunch
14:00–18:00 Pine forests and sandy soils of Venevitovo research station
18:00–19:00 City tour
19:00–22:00 Dinner
22:00–23:00 Night train to Rostov-on-Don
• Day 17 – August 6 (Tuesday)
09:00–12:00 Arrival to Rostov-on-Don, transfer to University campus, accommodation in student dormitories, lunch
12:00–13:00 Bus transfer to Botanical Garden
13:00–15:00 Soil profile at the bank of Temernik river
15:00–16:00 Excursion at the Botanical Garden and research labs
16:00–17:00 Second lunch
17:00–19:00 Alluvial soils and South Chernozems – profile description
19:00–22:00 Bus transfer to campus and dinner



• Day 18 – August 7 (Wednesday)

08:00 Departure from campus
09:00–09:30 Breakfast in hotel
09:30–10:00 Departure from hotel
10:00–10:30 Alluvial soils at the Don river valley
11:00–13:00 Constructed Technosols of a Golf coarse: forming factors, properties and functions
13:00–14:00 Dinner at the Golf Course Restaurant
14:00–17:30 Excursion to Starocherkasskaya village – the historical center of Don Cossacks
17:30–21:00 Picnic at the bank of Don river (swimming is possible)

21:00–22:00 Bus transfer to University campus

• Day 19 – August 8 (Thursday)

09:00–09:30 Breakfast in campus
09:30–14:00 Closing lecture "Urban soils and landscapes of Russian South" by Prof. S. Gorbov
14:00–15:00 Lunch
15:00–21:00 Bus excursion to Taganrog and Azov Sea shore

21:00–22:00 Return to campus

• Day 20 – August 9 (Friday)

09:00–09:30 Breakfast in campus
09:30–14:00 Final test. Team work on project preparation
14:00–15:00 Lunch
15:00–19:30 Team work on project preparation
19:30–23:00 Closing party

• Day 21 – August 10 (Saturday)

10:00–12:30 Public defense of the reports by the project teams
12:30–13:00 Closing ceremony of 3MUGIS-2019
13:00–14:00 Lunch

14:00–23:00 Train transfer from Rostov-on-Don to Moscow. Arrival to Moscow at 7:35 AM

• Day 22 – August 11 (Sunday)

8:00 Arrival to Moscow

