### **Italo-German Summer School**

Funded by Deutscher Austauschdienst (DAAD) **German Exchange Service Program** 

Dialogue with Institutions of Higher Education in Southern Europe

Hochschuldialog mit Südeuropa

Dialogo tra le università tedesche e sudeuropee

## **DAAD**



### **Applications for the Summer School**

Deadline: 31 March 2017

### Contact:

Hohenheim students:

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### Siena students:

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# Italo-German Summer School

## Plant responses to CO<sub>2</sub> and heavy metal enrichment

### **Organizing institutes**

Institute for Plant and Landscape Ecology University of Hohenheim August von Hartmann Str. 3 D-70599 Stuttgart https://ecology.uni-hohenheim.de/en/65585

Dept. of Life Sciences, University of Siena Via P.A. Mattioli, 4 I-53100 Siena http://en.unisi.it/departments/department-life-sciences





## THE SUMMER SCHOOL TENTATIVE AGENDA

Rising concentrations of the greenhouse gas carbon dioxide (CO<sub>2</sub>) and the associated climatic change are a global problem that will persist on the medium to long term despite the recent international agreements. Life support functions and ecosystem services will be affected in multiple ways, including carbon, water and matter cycles, crop productivity, biodiversity and forest stability. At the same time environmental pollution from anthropogenic activities will affect the quality of life of a growing number of people. In the summer school, we will address plant responses to elevated CO<sub>2</sub> and the effects of heavy metal enrichment.

In the first week, which is going to take place in Siena, we will have a closer look at natural CO<sub>2</sub> springs and the heavy metal pollution at former mining sites. Excursions will be performed to the Colline Metallifere and the Amiata Mountains (Tuscany), regions with high geogenic levels of heavy metals and a high number of geothermal fields, which lead to gaseous releases of CO<sub>2</sub>, mercury and sulfuric compounds. We will perform field investigations and address the specific vegetation adapted to these compounds. We will also use plants as biomonitors for heavy metals involving the collection of plant samples in the field. Chemical analyses will be performed in Hohenheim.

In the second part of the summer school, which is going to take place in Germany, students will be introduced to technologies used for CO<sub>2</sub> enrichment and climate simulation and methods to investigate ecophysiological effects on plant performance. Students will assist in ongoing research in climate chamber studies and the free air carbon dioxide enrichment (FACE) facility operated in Hohenheim. They will also evaluate the data that had been gathered in Italy during the first week.

WEEK 1	Italy (University of Siena)
	29 May to 3 June 2017
Day 1	Arrival, Welcome and Introduction to the Summer School, Presentation of the University, the Faculty and the Research Fields of the organizing institute.
Days 2 -5	Get together: "Tuscan Evening" Excursions to the Colline Metallifere/Amiata Natural Parks, information on the geology, natural history and environmental problems of the area: earthquakes, geothermal energy and post-industrial environmental pollution - Visit to a mofette, perform CO <sub>2</sub> and temperature measurements - Visit to calaminarian grasslands and sample
Day 6	collection for biomonitoring of Hg, Pb and Zn Departure of German students
WEEK 2	Germany (University of Hohenheim)
	19 to 24 June 2017
Day 1 Days 2-5	Arrival, Welcome and presentation of the University, the Faculty and the Research Fields of the organizing institute. Get together: "Swabian Evening" Introduction to heavy metal analyses of plant
	material and biomonitoring issues - Visit to the Climate Chambers and the Free Air Carbon Dioxide Enrichment (FACE) facility of the institute - Field work at the FACE site (Heidfeldhof), install temperature and CO <sub>2</sub> loggers in the crop canopy (most likely oilseed rape) for continuous

Duration 4 weeks E-learning period starting shortly after registration, 12 days lectures and excursions (6 in Italy, 6 in Germany)

**CORE INFORMATION** 

Number of places 20 (10 places each reserved for Siena and

Hohenheim students)

Proof of registration Until 1 April 2017 by advance payment of

300,-€ that will be reimbursed later

Language English

7.5 ECTS Credits

Master and PhD students Level

Entry conditions Students must be enrolled at the universities

> Siena or Hohenheim or have their home university at one of the universities in case they participate in an international program, e.g. Euroleague for Life Sciences (ELLS).

Course structure E-learning, Lectures, Excursion, Working

groups, Practical field work, Data analyses,

Final presentation.

Fees For Hohenheim and Siena residents transport

to the respective partner site, accommodation and subsistence will be covered by the DAAD support up to a maximum daily allowance. Students will be required to cover their own

costs for personal needs.

Will be organized by the course leaders Accommodation

Insurance Participants need to check insurance status

for health and civil liability



- Data evaluation and final presentations

measurements