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# Agropolis International training and education

## *in the Geoinformation and Earth Observation for Environment and Territories field*

Agropolis International proposes a complete training-education programme provided through its member institutions (universities and engineering schools, as well as vocational training institutions).

The training-education programme includes more than 80 diploma courses (from Bac +2 to Bac +8: technician, engineering degree, Master's, post-Master's degree, PhD), as well as vocational training modules (existing or developed upon request).

The tables below outline the training-education courses related to the Geoinformation domain. They specify the diploma levels, a description of the training courses and the institutions in charge of the programmes.

## Education programmes

### Programmes focused on the Geoinformation theme

| Level | Degree | Title | Institution |
|---|---|---|---|
| **Bac+5** | ***Master professionnel* (Professional MSc)** | Territories and societies, planning and development (TSAD) Specialization 'Information systems and geoinformation for land management and governance' (SIIG3T) | AgroParisTech/ ENGREF, UM2, UM3 |
| **Bac+6** | ***Mastère Spécialisé CGE* (Master of Advanced Studies)** | Geolocalized information systems for territorial management (SILAT) | AgroParisTech/ ENGREF, Montpellier SupAgro |

### Programmes specialized on other themes with the main components focused on the Geoinformation theme

| Level | Degree | Title | Institution |
|---|---|---|---|
| **Bac+3** | ***Licence* (BSc)** | Geography and planning | UPVD |
| | | Geography, Planning | UM3 |
| | | Earth and environmental sciences | UM2 |
| | | Earth and environmental sciences | UPVD |
| | ***Licence professionnelle* (BSc with professional scope)** | Web-oriented geographic information systems | UPVD |
| | | Geographic information processing | UPVD |
| **Bac+5** | ***Ingénieur* (Engineering)** | Agricultural engineering - Specialization 'Information and communication technology' (AgroTIC) | Montpellier SupAgro ENITA Bordeaux |
| | | Agricultural engineering - Specialization 'Territories and resources: public policies and stakeholders' (TERPPA) | Montpellier SupAgro |
| | | Agricultural engineering - Specialization 'Water, cropland and environment management' (GEME) | Montpellier SupAgro |
| | | Agricultural engineering - Specialization 'Environmental engineering: water, waste and sustainable planning' | AgroParisTech/ ENGREF |
| | | Forest engineering | AgroParisTech/ ENGREF |
| | | Engineering at the *École des Mines d'Alès* | EMA |

| Level | Degree | Title | Institution |
|---|---|---|---|
| Bac+5 | *Master recherche* (Research MSc) | Humankind, landscapes, territories – Specialization 'Combined dynamics of landscapes and territories' | UPVD |
| | | Territories and societies, planning and development (TSAD) Specialization 'Stakeholders, development and new territorialities' (ADNT) | UM3 |
| | | Territories and societies, planning and development (TSAD) Specialization 'Innovation and rural development' (IDTR) | CIHEAM-IAM.M, Montpellier SupAgro, UM3 |
| | | Biology, geoscience, agroresources, environment (BGAE) Specialization 'Water science in continental environments' Focus 'Water and environment' (R2E) | AgroParisTech/ ENGREF, Montpellier SupAgro, UM1, UM2 |
| | *Master professionnel* (Professional MSc) | Biology, geoscience, agroresources, environment (BGAE) Focus 'Georisks' | UM2 |
| | | Biology, geoscience, agroresources, environment (BGAE) Focus 'Management of inshore and offshore areas' (GLM) | UM1, UM2, UM3 |
| | | Management of inshore and offshore areas | UM1, UM2, UM3 |
| Bac+7 | *Ingénieur spécialisé* (Engineering degree) | Agriculture and forestry, engineering and water management | AgroParisTech/ ENGREF |

# Short training programmes

Over the last 20 years, Agropolis International institutions, especially AgroParisTech within the framework of the Remote Sensing Center (Montpellier, France), have developed a solid diversified training programme for professional stakeholders and research staff wishing to enhance their knowledge on geoinformation methods and tools and to implement them in different specific fields.

In addition to this 'catalogue' training package, other special training courses are offered in response to specific requests. These services are adapted to fulfil the specific needs of partner organizations and are accompanied by educational engineering initiatives aimed at formalizing training approaches and disseminating geomatic training methods and tools. Educational technology is used especially so as to be able to tailor training sessions to the constraints and to the diverse range of target trainees (open and distance learning, customization of learning processes).

| Institution | Title |
|---|---|
| AgroParisTech/ENGREF | Operational GIS: methods and tools (ArcGIS) (5 d) |
| | Operational GIS: methods and tools (MapInfo) (5 d) |
| | Administration of geographic data (5 d) |
| | GIS project management (4 d) |
| | Images and orthophotos in GIS (3 d) |
| | Digital terrain models (3 d) |
| | Cartographic representation (3 d) |
| | Webmapping and online GIS services (4 d) |
| | Definiens Developer software familiarization (5 d) |
| | UML: modelling and environmental applications (5 d) |
| | MapServer/PostGIS in practice |
| | Free GIS software: initiation (2 d) |
| | Free GIS software: familiarization (2 d) |
| | Spatial statistics (5 d) |
| | Participative management of territorial projects: facilitation initiation (3 d) |
| | Participative management of territorial projects: benefits of geomatic tools (3 d) |
| | Territorial analysis (5 d) |
| | Use of spatial representations to develop territorial action strategies (4 d) |
| | Network analysis (5 d) |
| CIRAD | Observatories and geographic information systems for rural planning and environmental management (4 weeks) |
| CIHEAM / IAM.M | Multi-use approach to land-use planning – Fences as an educational tool (trainer training, semi-distance training, 7 d) |
| Montpellier SupAgro | Land-use planning tools (8 d) |

# Agropolis International training and education

## Graduate schools focused on Geoinformation issues

A PhD diploma is obtained after 3 years of laboratory research. PhD students are de facto attached to a PhD institution. PhD institutions host research units and laboratories working on major themes. Their mission is twofold: 1) to ensure direct scientific support for PhD students; 2) to provide additional training throughout the 3 years.

**Contacts**

**Graduate school 'Systèmes Intégrés en Biologie, Agronomie, Géosciences, Hydrosciences, Environnement' (ED SIBAGHE)**
*(UM2, Montpellier SupAgro, AgroParisTech, UAPV, UM1, UPVD)*
**Director: Bernard Godelle, godelle@univ-montp2.fr**
**Secretariat: joelle.lopez@univ-montp2.fr**
**www.sibaghe.univ-montp2.fr**

**Graduate school 'Territoires, Temps, Sociétés et Développement' (TTSD, ED 60) (UM3, UPVD)**
*(UM1, UM2, Montpellier SupAgro)*
**Director: Paul Pandolfi, Paulpandolfi@aol.com**
**www.univ-perp.fr**

**Graduate school 'Information, Structures, Systèmes' (I2S)**
*(UM2, UM1, UM3, UAPV)*
**Director François Forest, francois.forest@univ-montp2.fr**
**Secretariat: Nadine Tilloy, nadine.tilloy@lirmm.fr**
**www.edi2s.univ-montp2.fr**

The purpose of these modules is to improve the scientific education of the PhD students and help them prepare their professional future.

Three graduate schools focus on the 'Geoinformation' theme:

### Graduate school *'Systèmes Intégrés en* Biologie, Agronomie, *Géosciences,* Hydrosciences, *Environnement'* (SIBAGHE)

The SIBAGHE graduate school (integrated biology, agronomy, geoscience, hydroscience and environment research systems) is devoted to life and earth sciences. It has joint accreditation with AgroParisTech/ENGREF, Montpellier SupAgro, UM2 and the *Université d'Avignon* for Agricultural and Environmental Sciences, along with the universities UM1 and UPVD for genomics, botany, microbiology and parasitology.

The SIBAGHE graduate school hosts around 440 PhD students and is supported by 45 affiliated research units, 350 training supervisors and several associated external research teams. Every SIBAGHE PhD student must successfully complete two scientific training modules and two professional introduction modules. The graduate school manages thesis registrations, PhD student supervision, ensures that the thesis charter is respected and organises thesis courses and professional guidance. It is assisted by a council and managed by an office.

In the geoinformation field, the SIBAGHE graduate school hosts PhD candidates focusing thesis research on spatial and airborne remote sensing, spatial analysis and modelling applied to water, agriculture, environment, risks, health, etc.

### Graduate school *'Territoires,* Temps, Sociétés et *Développement'* (TTSD, ED 60)

The TTSD graduate school (territory, time, society and development) is affiliated with UM3 and UPVD. It groups 14 research teams, 200 teacher-researchers and around 500 PhD candidates. It offers PhD degrees in 13 fields, including 'Geography and land-use planning'. Some of the main lines of research are:

- relationships between society (human groups, institutions, companies, etc.) and the environment (territories, resources, etc.)
- rural area, sustainable development, risk prevention and conservation of natural areas
- physical features and resources (natural or technological) of rural or urban areas, etc.

In the geoinformation field, the

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▲ *Training on image processing and spatial analysis software at the Remote Sensing Center (Montpellier, France).*

TTSD graduate school hosts PhD candidates focusing thesis research on the analysis of spatial and temporal territorial dynamics and on the importance of information in territorial development, both in terms of drawing up and implementing public policies and governance strategies and discussions between stakeholders.

## Graduate school *'Information, Structures,* Systèmes' (I2S)

The I2S graduate school (information, structures, systems) is affiliated with UM2, with the participation of UM1, UM3 and Montpellier SupAgro. INRA and CIRAD are associate institutions. This school provides PhD training in a broad range of hard sciences (mathematics, mechanics, physics, information science and technology), with substantial interaction with life sciences. It is supported by 17 host research units with recognized expertise in each discipline.

It pools seven PhD specialties: biostatistics, electronics, informatics, mathematics, mechanics and civil engineering, automated systems and microelectronics, and physics. It currently hosts over 440 PhD candidates.

In the geoinformation field, the I2S graduate school hosts PhD candidates focusing thesis research on designing spatially referenced information systems and on image and signal processing methods. ■