



EUROPEAN AEROBIOLOGY SOCIETY

European Aerobiology Society
<http://www.eas-aerobiology.eu/>
September 2017

EUROPEAN BASIC COURSE ON AEROBIOLOGY - SPECIFICATIONS

1. COURSE RATIONALE

Aerobiology is the study of airborne particles of biological origin that are passively transported in the air, and considers their sources, release, dispersion, deposition and impacts (Lacey 1994). It has many applications including human health (e.g. allergy and the spread of airborne diseases), agriculture (e.g. phytopathology) and phenology. The Basic Courses in Aerobiology has been running since 1993 and was the response to the growing interest in monitoring and modelling airborne particles. It is an interdisciplinary course that would be of interest to workers from a range of different disciplines, such as aerosol physicists, botanists, chemists, climatologists, engineers, epidemiologists, environmental scientists, forensic scientists, meteorologists, microbiologists, mycologists, palynologists, physicians, plant pathologists, statisticians, veterinarians and others (Burge 1998; Galan 2006).

2. INTENDED LEARNING OUTCOMES

By the end of this course students will have:

- An understanding of the science and application of Aerobiology
- An introduction into sampling techniques used in Aerobiology
- Knowledge of laboratory techniques used in sample preparation and analysis
- Expertise in identifying selected pollen and fungal spores by light microscopy
- An overview of the relationships between Aerobiology and health

3. ASSESSMENT DETAILS

The course will be assessed by a combination of a written examination (40%), a practical test counting daily slides (30%) and practical pollen and fungal spore identification from type slides (30%). All examinations will take place on the last morning of the course.

The written examination will consist of questions based on the course content, and will include topics such as pollen and fungal spore morphology, phenology, and sampling techniques. The duration of the exam will be 1 hour.

The practical test of counting daily slides will involve examining daily slides from the site where the course is taking place. Students will be expected to count pollen on two slides taken from different times of the year, spring (i.e. early flowering trees) and summer (i.e. grasses and weeds). Duration 1 ½ hours.

The second practical test will comprise the identification of pollen grains and fungal spores from type slides used during the duration of the course. Duration 30 minutes.

4. SCIENTIFIC SPECIFICATIONS

4.1: Main session

The Main session is for 5 days, and must contain lectures, practical exercises and tests. The program should follow the general topics proposed in Basic Courses and must be supervised by the EAS WG on Education.

The lectures are on the following aerobiological topics:

- Aerobiology



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- Aerodynamic and pollen sampling
- Pollen and aeroallergen samplers
- Basic microscopy, optical microscopy, field of view, scanning the slides, sources of error
- Pollen structure and morphology
- Fungal spore structure and morphology
- Practical plant identification and taxonomy
- Pollen development, biology and function
- EAN data base, Polleninfo.org
- Health impacts of exposure to pollen and moulds
- Climate change: the effect on airborne pollen concentrations
- Modelling and forecasting techniques in Aerobiology
- Basic statistics applied to Aerobiology
- Quality Assurance and Quality Control in Aerobiology

The students will receive material with all lessons in pdf.

The practical exercises in the Main session will focus on the most important airborne pollen and fungal spores in terms of allergy (20 pollen grains and 4 fungal spores):

- Presentation and adjustment of the microscope.
- Presentation and adjustment of the pollen trap.
- Preparation of the drums and the slides
- Practical lessons for pollen and spore identification
- Practical lessons for pollen and spores counting.

The students will receive material with pollen and spore descriptions and slides with **monospecific** pollen and fungal spores for identification. This material will be used during the identification practical lessons. Samplers with airborne pollen and spore from different places in Europe will be used for practical lessons focused on pollen and spore counting.

The Main session will end with theoretical and practical examinations.

Presentation of certificates

4.2: Optional session

- The Optional session will only consist of practical sessions with a test and an examination
- Identification (up to 20 more pollen grains and 10 more fungal spores)
- Test and examination
- Complementary certificate.

5. LOGISTICAL SPECIFICATIONS

5.1: Location

The basic course must be organized by a member of EAS working in a university or association with a topic in Aerobiology. The basic course must be located in a place that is less than 2 hours from an



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international airport. The location of the course, the accommodations of the students and the teachers must be at approximately the same place.

5.2: Duration and Time-table

The basic course may be divided in to two parts:

- The Main session, this must be organized from Monday 09:00 to Friday afternoon
- Optional session consisting of up to four extra days the following week
- Social program in 1 or 2 days during the week-end

5.3: Accommodations for the course (15 to 25 participants)

The location for the course must permit enough places for the theoretical courses and the practical exercises. For the theoretical session, the place must be sufficient for the students, their documentations and the teachers. The room must be equipped with video projection and paperboard. The lighting must be able to be altered so that the details on the slides projected onto the screen can be seen. For the practical exercises, each student must have one optical microscope of good quality **equipped with objectives 10x, 20x and 40x and ocular lens 10x** . The students must be, if possible, in the same room. One microscope with a camera will be connected to a video projector as a computer. The teachers must be able to present the details of a pollen grain and the different characteristic of this pollen on the CD key of determination.

5.4: Accommodations for students

Students must have single or double rooms with toilets and bathroom in a location near the course location. They must have Wi-Fi connection in the rooms.

5.5: Accommodations for teachers

Teachers must have single room in a hotel or residence not too far from the location of the course. The level of comfort must be $\geq 2^*$.

5.6: Lunch and dinner during the course: Teachers and students should have space for lunch and dinner in the dining hall of the building or in any place near the course.

6. BUDGET

- The fee for the Basic Course should be in the range of 600-700 euros per person, so that participants from all countries can attend. The fee should include the following:
- Teaching facilities
- Teaching technical staff
- Subsistence and accommodation for participants
- Travel for visiting lecturers
- Subsistence and accommodation for visiting lecturers
- Supported places–It is recommended that the Basic Course should offer a number of grants for participants.
- Printing, preparation notes and reagents
- Excursion – One excursion on the last afternoon of the course
- End of course dinner



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