European Master in Official Statistics

Permanently open call with annual cut-off dates for universities applying for the EMOS label

Guide for applicants

This guide aims to facilitate the drafting and compiling of the application for the EMOS label by:

- describing the background of EMOS,
- outlining the roadmap of the call for applications,
- setting out the criteria to be met by the master's programme,
- explaining the assessment process,
- listing the documents to be submitted for the assessment.

1. European Master in Official Statistics (EMOS)

The European Master in Official Statistics (EMOS) was launched by Eurostat and the European Statistical System (ESS) in 2014 to connect producers of official statistics and academia at European level. As a joint project of universities and data producers, EMOS aims at including official statistics in statistical curricula, meeting training and recruitment needs in the ESS and constituting a future recruitment pool of highly educated professional statisticians for the ESS and the European System of Central Banks (ESCB).

EMOS is a label awarded by the European Statistical System Committee (ESSC) for five years, renewable upon continued fulfilment of EMOS requirements. In the EMOS governance structure the ESSC is the highest decision-making body awarding the EMOS label to master's programmes and appointing members to the EMOS Board. The Board assists the ESSC in developing the programme, especially in awarding the EMOS label and in quality monitoring of the EMOS master's programmes. The EMOS Board is chaired by Eurostat and consists of 14 members representing both universities and producers of official statistics.

The EMOS network is active in more than 15 European countries and comprises more than 30 universities and their collaboration partners in national statistical offices (NSIs), central banks (CBs), other national authorities (ONAs) ([1]), international organisations (IO) and other partners organisations ([2]). The EMOS curriculum builds on existing and nationally accredited master's programmes which, in line with the EMOS learning outcomes (Annex 1), familiarise the graduates with the system of official statistics, production models and methods, themes in official statistics, statistical methods and data dissemination. EMOS-labelled master's programmes actively collaborate with national statistical institutes and partner organisations dealing with statistics and data for relevant master thesis topic and internships in the sphere of official statistics. Partners in the EMOS network benefit from each other's experiences and can develop deeper cooperation, e.g., joint degrees, teaching collaborations or student exchange programmes. In addition, EMOS activities such as paid cross-border internships, sponsored conference attendance, webinars, workshops, bi-annual Master Thesis Competition offer an opportunity for the students to acquire a relevant mix of skills and knowledge for tomorrow's official statisticians.

([1]) List of National Statistical Institutes (NSI) and Other National Authorities (ONA)" based on Article 5(2) of Regulation (EC) No 223/2009 amended by Regulation (EU) 2015/759.

([2]) Partner organisation is any other organisation producing or dealing with statistics and data, as long as the collaboration (thesis topic, internship) is relevant to official statistics and based on the EMOS learning outcomes.
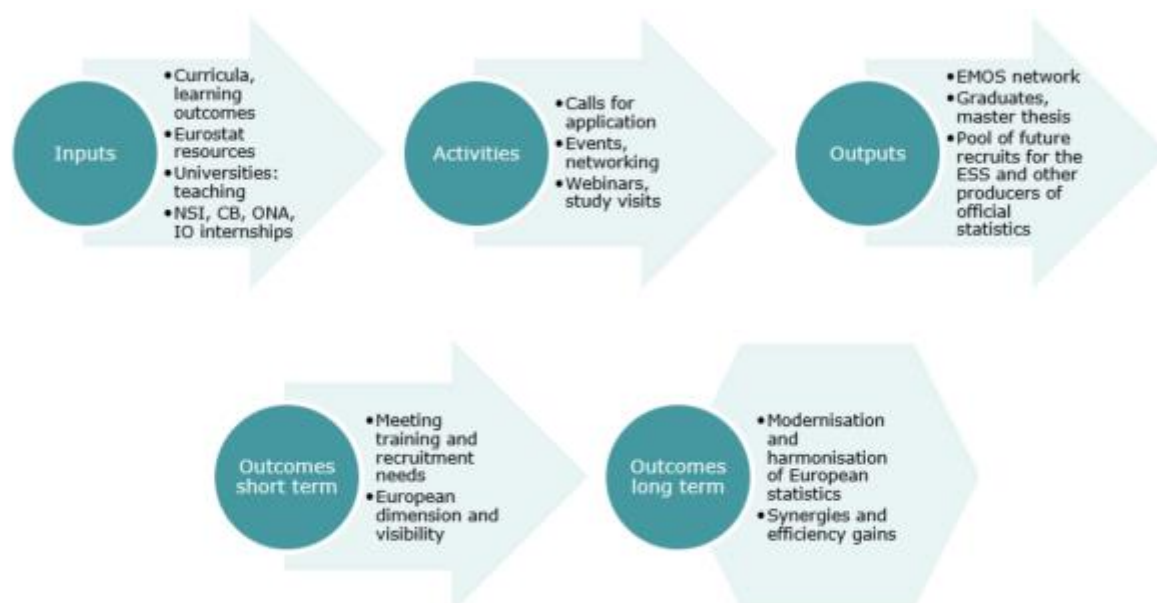
Figure 1: Intervention logic about how EMOS activities are expected to deliver long- and short-term outcomes

2. Emphasis of EMOS master's programmes to address future challenges

This call invites universities interested in official statistics to join the EMOS network. Applicants can build a new and accredited EMOS master's programme or add the coursework covering the EMOS learning outcomes to existing relevant master's programmes.

EMOS master's programmes need to address the rapidly changing landscape from design-based production of official statistics to integrating different kinds of data sources, including new data sources. Students will need a blend of different skills to cope with multisource statistics such as classical statistical surveys, administrative data, privately held data, along with associated new statistical production methods that make more frequent use of model-based and algorithm-based estimation techniques. Moreover, future statisticians will need to understand the institutional environment, statistical processes, dimensions of the quality of the statistical outputs with special emphasis on the dissemination aspects, not only in their national contexts but at the European level. Communicating statistical products is evolving with new IT solutions and covers statistical literacy of the entire society, thus requiring strong communication capabilities. EMOS-labelled programmes should address these future challenges and adapt their pedagogical approach accordingly in order to offer a stimulating learning experience.

3. Roadmap

Year t	Permanent open call for applications is published on the EMOS website
31 December year t	**Cut-off date for submissions**
January year t+1	EMOS Secretariat: • checks admissibility criteria and requests missing documents; • proceeds with clarification requests on behalf of the EMOS Board members and recomposing evaluation teams in case of conflict of interest.
January year t+1	EMOS Board assesses the following two sets of criteria: • Eligibility criteria — formal criteria (yes/no); • Selection criteria — fulfilling the EMOS requirements.
February-March year t+1	EMOS Board finalises the assessment and proposes a short-list of programmes to the ESS Committee for award of the EMOS label
May year t+1	EMOS label awarded by the ESS Committee and informing the applicants

4. Criteria for awarding the EMOS label

4.1. Admissibility criteria

The admissibility criteria are formal features of the application. The documents may be submitted in a national language; however, in this case, a non-certified translation into English **must** be provided. Personal data will be collected, processed and published in accordance with the provisions of Regulation (EU) No (EU) 2018/1725.

A list of the required documents and annexes to the EMOS application is provided in the Annex 2 of this Guide. The **application form** is available on the EMOS website.

The complete application with annexes is to be sent to ESTAT-EMOS@ec.europa.eu **by 31 December of the current year** at the latest by 23:59 (Central European Time - CET) with the subject 'Reply to EMOS Call for applications + name of the university'.

4.2. Eligibility criteria

The eligibility criteria are:

Eligibility criterion 1: The programme is an accredited master's programme in an EU Member State, EU candidate country or EFTA country.

Eligibility criterion 2: The master's programme is in line with the Bologna process and the European Credit Transfer and Accumulation System (ECTS).

If the application does not meet the eligibility requirements, **it will not be assessed any further** and feedback will be provided only on the aspects that led to it being rejected.

4.3. Selection criteria

The selection criteria are:

Selection criterion 1: The master's programme is organised in line with the EMOS learning outcomes, includes a master's thesis and an internship in the area of official statistics

Master's thesis: the programme includes a master's thesis. In formally justified cases, the master's thesis can be substituted by an equivalent scientific report on a relevant topic related to official statistics. The development of the master's thesis/scientific report must be supported by a National Statistical Institute (NSI), National Central Bank (NCB), Other National Authority (ONA), an International Organisation (IO) or any other partner organisation producing or dealing with statistics and data, as long as the thesis topic is relevant to official statistics and based on the EMOS learning outcomes.

Internships: The programme includes an internship of a minimum 8 weeks in an NSI, a statistical department of an NCB, ONA, IO or other partner organisation and is steered and managed by the university as well as the respective NSI, NCB, ONA, IO or any other partner organisation producing or dealing with statistics and data, as long as the internship focuses on work that is relevant to official statistics.

As a rule, internships are to be carried out physically at the working premises. However, remote internships can be accommodated when it is not possible to organise them otherwise.

Selection criterion 2: Written agreement of cooperation with the respective NSI, NCB, ONA or IO

The University has set up a written agreement of cooperation with the respective NSI, NCB, ONA or IO with regard to internships and other support such as cooperation in teaching and master's thesis.

Selection criterion 3: The credits allocated to the master's programme amount to at least 90 ECTS

The total credits devoted to the EMOS master's programme are worth at least 90 ECTS which must include:

- At least 50 ECTS allocated to the courses aimed at reaching the EMOS learning outcomes
- At least 30 ECTS allocated to a combination of master's thesis of at least 20 ECTS and internship of at least 10 ECTS and/or of a minimum duration of 8 weeks.
- In case of awarding only a minimum number of ECTS to the master's thesis and internship, the remaining ECTS (up to 10 ECTS) should be allocated to the EMOS learning outcomes in order to reach the total of 90 ECTS.
- In case the specific rules in place in a given country do not allow ECTS to be awarded for the:
  - master's thesis, the programme has to include an equivalent number of ECTS dedicated to research leading to a scientific report.
  - internship, the programme has to include practical experience with an equivalent workload in terms of duration (8 weeks).

Selection criterion 4: Start of the programme

The master's program should already be operational or start no later than one year after the application is received by the EMOS Secretariat.

Selection criterion 5: Adequate teaching capacity and qualifications

The university holds adequate teaching capacity and qualifications for the master's programme.

4.4. Additional assets

Though not taken into account in the selection decision, an effective quality assurance system and cooperation with higher education institutions at an international level or participation in European networks are considered as additional assets. The information will give an insight into ongoing projects and the quality assessment mechanism that has been put in place. This information will also feed into further development work of the EMOS network.

5. Assessment

5.1. Scores

The EMOS Board will assess the eligibility and the selection criteria on the basis of the information provided in the application forms and the annexes. Each criterion will be scored on a scale from 0 to 3 (half point scores may be given):

Score	Description
0 Insufficient	proposal fails to address the criterion or cannot be assessed due to missing or incomplete information
1 Fair	proposal broadly addresses the criterion, but there are significant weaknesses
2 Good	proposal addresses the criterion well, but some shortcomings are present
3 Excellent	proposal successfully addresses all relevant aspects of the criterion, any shortcomings are minor

An application fulfils the selection criteria if it **receives at least "Good" for each criterion**.

5.2. Assessment process

The assessment team consists of the EMOS Board and EMOS Secretariat at Eurostat. The EMOS Board must assess the applications objectively and independently. All members of the EMOS Board must sign a declaration of absence of conflict of interest and of confidentiality. The deliberations of the EMOS Board shall be confidential.

In case the organisation with which an EMOS Board member is affiliated is involved in an application for the EMOS label, the respective member will not be involved in the assessment and will be requested to leave the room during the deliberations regarding that particular application.

The EMOS Secretariat and Board reserve the right to request clarifications from the applicants at any point in time of the process.

6. Annual reports and relabelling

6.1. Reporting changes to the EMOS Board

Once the EMOS label is awarded by the ESSC, the EMOS Board should routinely be consulted about any changes to the labelled programme. An email with the proposed changes should be sent to the EMOS Secretariat at ESTAT-EMOS@ec.europa.eu, which will inform the Board members. The Board will proceed to evaluate whether the changes are in line with EMOS Guide and EMOS learning outcomes requirements.

In case of major deviations of the EMOS-labelled master´s programme from the EMOS Guide and EMOS learning outcomes, the relabelling process will have to be carried out once again before the label expires.

6.2. Annual reporting

Each year, EMOS-labelled master's programmes fill in an annual reporting questionnaire prepared by the EMOS Secretariat. The questionnaire collects information on enrolled students and successful graduates of the programme, evaluation of EMOS activities, the overall assessment of the academic year, completed internships, master´s theses and research topics. The annual questionnaire is also a tool for the systematic collection of information on changes introduced to the EMOS-labelled programmes during the reporting year.

The EMOS Secretariat prepares an analysis of the responses and an annual report, which is shared with the EMOS Board.

6.3. Relabelling process

The EMOS label is awarded for five years. To renew their EMOS label, master's programmes are requested to submit information on their motivation, plans to develop their programmes, teaching and coursework addressing the EMOS learning outcomes. This information is collected through a dedicated section of the annual reporting questionnaire. The EMOS Board members examine the received feedback and assess whether the proposed programme continue to fulfil the requirements for the award of the EMOS label for the next 5-year period.

EUROPEAN MASTER IN OFFICIAL STATISTICS

EMOS

Annex 1

September 2019

Learning Outcomes of the EMOS programmes

I. Programme Profile

EMOS aims at providing students with an advanced training in the specific themes of statistics in general and official statistics in particular, supported by the complementary quantitative and statistical tools offered by the hosting university. The main objective of EMOS is to enhance the abilities of students to understand and to be able to analyse European official data at different levels: quality, production process, dissemination, and analysis in a national, European and international context.

This range of skills represents the ideal foundation for the development of professionals able to interpret the fast-changing official data production system of the 21st century. This is why it is important that the EMOS learning outcomes are included in a degree designed for students aiming at economical/social/statistical knowledge-intensive careers. It contributes to offer a solid foundation for those willing to pursue a preparation in the field of data collection on societal and economic facts or other professional activities characterised by a strong need for awareness about the development, production and dissemination as well as use of official statistics.

II. Learning Outcomes

Graduates who have successfully completed an EMOS programme will be able to demonstrate knowledge about:

1) The system of official statistics

a. To be aware of the importance of official statistics as basis for data-driven policy decision making;

b. To master the organisation and role of the European Statistical System (ESS), the European System of Central Banks (ESCB) and other official data producers and their legal bases, including those referring to data confidentiality;

c. To be aware of the main institutions operating at national and international level and their data sources (e.g. Eurostat, ECB, IMF, ILO, BIS, UN, OECD, World Bank);

d. To understand the principles of the European Statistics Code of Practice (for the ESS) [3] and the Public Commitment (for the ESCB) and how they apply to the different steps of data production and dissemination.

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[3] Laid down in Regulation (EC) No 223/2009 as amended as well as Council Regulation (EC) No 2533/98.

2) <u>Production models and methods</u>

a. To understand and be able to use different kinds of data sources for statistical production, especially censuses, survey data, administrative sources, big data as well as to evaluate pros and cons of each data source (impact on the main quality dimensions of the results);

b. To be able to design and manage data production processes, including the definition of the main dimensions of quality and how to monitor and evaluate them;

c. To be aware of different production models, including the enterprise architecture concepts applied to official statistics (e.g. metadata management, Generic Statistical Business Process Model, data archiving, standard statistical units, mixed-device surveys, statistical classification);

3) <u>Themes in official statistics</u>

a. To be able to understand methodological issues related to the statistical domains such as economy and finance, population and social conditions, industry, trade and services, agriculture and fisheries, international trade, transport, environment and energy, science and technology, general and regional statistics, sustainable development goals;

b. To be able to apply methods suitable to produce and analyse data in these fields;

4) <u>Statistical Methods</u>

a. Knowledge of and ability to apply statistical methods such as sampling, small area estimation, non-response adjustments, editing and imputation, validation, treatment of big data, time series analyses, seasonal adjustment, outlier treatment, index theory, multivariate statistics, econometrics, spatial statistics, knowing the concepts of metadata, paradata, data integration, critical capacity of framing analysis of statistical data;

b. Understand statistical confidentiality issues in the production as well as dissemination of official statistics and the main methods to ensure it (i.e. privacy-preserving computation, statistical disclosure control)

c. User experience and programming capacities enabling to find professional solutions to complex data processing tasks, e.g. with tools such as R, Python, SAS, SPSS or STATA;

5) <u>Dissemination</u>

a. Ability to present data in an effective way to different kinds of audience using different types of state-of-the-art communication channels including social media;

b. Understanding and actively handling the most important tools available for data and metadata dissemination and presentation of results, such as tables, charts in a static and dynamic web-based environment, data warehouses, advanced visual graphics, etc.

c. To be familiar with different disseminated data e.g. linked open data, infographics and experimental statistics.

Annex 2

List of required documents and annexes to the EMOS application

- For documents in a national language other than English, a translation in English (non-certified) must be provided.
- Please number and list your documents and annexes on a separate page.
- Please compress voluminous files as .zip files.

No	Name of document/annex/proof
1	**EMOS application form** available on the [EMOS website]().
2	**Eligibility – Accreditation**Proof that the current programme is authorised by the relevant authorities in an eligible country: Copy of the authentic curriculum document in the original language and its translation in English. *Note: if the received accreditation implies the compliance with the Bologna process, please explain in a separate letter with reference to national legislation if relevant*
3	**Eligibility - Bologna** Proof that the programme is in line with the Bologna process and the European Credit Transfer and Accumulation System (ECTS) or equivalent.
4	**Selection - Cooperation with statistical authorities** Proof of established collaboration with the respective NSI or other statistical authority: Copy of the written agreement of cooperation with the respective NSI, NCB, ONA or IO with regard to internships and other support such as cooperation in teaching and master's thesis *Note: The document should be signed by the highest possible hierarchy (equivalent to Director General or Director General Statistics).*
5	**Selection - Teacher profile** CVs of course leaders *Note: applications must include CVs not older than one year of each responsible course leader, explaining their experience relevant to official statistics. CVs of the proposed lecturers may be requested at a later stage on a case-by-case basis, if necessary.*

6	**Assets - Quality** Document certifying that the master's programme is regularly monitored by an effective quality assurance system
7	**Assets - Inter-institutional cooperation** Document certifying that the master's programme has established cooperation with higher education institutions at the European level or participates in international networks.