



GUIDELINES FOR CANDIDATES

MSCA COFUND DOC2AMU

3I Doctoral Programme

1st Call for Candidates



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PROGRAMME DESCRIPTION

DOC2AMU is an innovative doctoral programme aiming to finance 30 3-year doctoral contracts from 2016 to 2021 at Aix-Marseille Université (AMU) in Marseille and Aix-en-Provence, France. These positions will be offered in three calls: 2016, 2017 and 2018. The programme is uniquely characterized by principles of interdisciplinarity, intersectoriality, and international exposure (« 3I »). Guided by personalised and innovative training, a Personal Career Development plan, and an intersectoral mentorship component, DOC2AMU provides a complete training programme to ensure the best career perspectives for its doctoral researchers.

The programme aims are:

- **Attracting young talented international fellows in the Aix-Marseille area**, willing to follow a high standard interdisciplinary doctoral programme;
- **Enhancing skills** of fellows, including transferrable ones, to maximise their professional integration either in academic or non-academic sectors;
- **Reinforcing AMU's scientific Excellence** on the selected interdisciplinary research topics, namely 'Imaging'; 'Nano-Health'; 'Big data'; 'Network'; 'Climate change' and 'Globalization';
- **Upgrading AMU's Doctorate curriculum**, aiming at generalizing the innovative Doctorate Principles¹ advocated by the European Commission and set up in DOC2AMU as a pilot project for doctoral training in AMU;
- **Reinforcing AMU's capacities to host talented international researchers** in high standard working and improved employment conditions;
- **Developing new synergies and new public/private partnerships** in the regional territory;
- **Strengthening the innovative and international aspects of the existing Regional Doctoral programme** by implementing "3I" PhDs;
- **Promoting research projects focusing on the regional RIS3 strategies²** to create a regional leverage effects in terms of knowledge and innovation, multiplying the collaborations between AMU academic partners and the regional clusters on the long term.

¹ http://ec.europa.eu/euraxess/pdf/research_policies/Principles_for_Innovative_Doctoral_Training.pdf



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DOC2AMU is carried by the Doctoral College of AMU; it relies on a partnership between 15 organisations (PACA Regional Council + A*MIDEX Foundation + 9 regional competitiveness clusters + SATT + IMÉRA + CROUS + Protisvalor Méditerranée).

It is a H2020 COFUND MSCA project financed by the European Commission under Grant Agreement 713750 and the Provence-Alpes-Côte d'Azur Regional Council, with a financial support from A*MIDEX Foundation.

² The Regional Council's Intelligent Specialization Strategies pertain to the economic sectors viewed as a priority for the region. They are: "Risks - Security - Safety"; "Smart and sustainable mobility"; "Health - Nutrition"; "Tourism - Cultural industries and digital technologies"; and "Energy transition - Energy efficiency".



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AIX-MARSEILLE UNIVERSITÉ (AMU)

AMU, which stems from the merger of the three former universities of Aix-Marseille on January 1st, 2012, offers to the doctoral researchers an ideal, high level scientific environment to undertake their doctoral thesis. Indeed, AMU is now one of the six French universities ranking in the top 150 universities in the world. Worldwide, it is the largest French-language University, gathering over 74,000 students (out of which 10,000 international students), 8000 faculty and staff members, and over 3,400 Doctoral researchers.

AMU is a large research-intensive university. The doctoral researchers perform their work in one of 130 research facilities (in joint research units with major French research institutions such as IRD, INRA, INSERM, CNRS, CEA, IFSTTAR, INRIA, IRSTEA, MMSH, ADEME, IFREMER, IRSN or Hospitals such as Assistance Publique –Hôpitaux de Marseille or Institut Paoli Calmette). The 130 research structures benefit from broad and internationally recognised expertise, perform studies with a strong interdisciplinary character, and are backed by high performance technological platforms which are in open use for the site's scientific community and to external public and private partners. These structures are supported by 12 disciplinary and interdisciplinary doctoral schools, organised within a doctoral college which notably stimulates, supports and organises the professional and the interdisciplinary trainings and the professional insertion of doctoral researchers.

AMU high visibility and excellence in research can be noted through these examples:

- More than 80% of AMU's research units have been ranked in the very good to excellent categories (A and A+) at the last national evaluation of the research
- Nationally, AMU has been selected by an international jury with 7 other French universities and granted the 'Initiative of Excellence' label, thanks to the A*MIDEX project, which is based on high quality criteria of research and education
- At the European level, AMU hosts 33 ERC Grantees
- Internationally, AMU is ranked amongst the top 150 universities in the Shanghai ranking.



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APPLICATION PROCEDURE

In order to apply for a doctoral fellowship within the DOC2AMU programme, candidates (referring to the potential doctoral researchers) must answer one of 20 calls for candidates. These calls for candidates correspond to selected thesis projects presented by AMU researchers, and are published along with these Guidelines for candidates. The calls include:

- The topic, the associated economic context, the scientific and/or technical bottlenecks to overcome
- The AMU Laboratories involved in the project, the name and contact details of the principal supervisor, the Doctoral School in which the candidate will be enrolled, the Interdisciplinary and Intersectoral Research Poles (PR2I) linked to the doctoral project and the potential non-academic partners that expressed an interest for the doctoral project
- Information on eligibility criteria specific to the Doctoral School, if relevant.

The candidate is responsible for submitting his/her own application. Candidates are strongly encouraged to contact their potential thesis supervisor before application in order to discuss the research project.

The candidates will submit electronically a complete application form following the template documents available through the web portal. No additional documents will be accepted after the closing of the submission portal at the time. To be eligible, the application must consist of a completed application file.

The application file consists of the following documents:

- A detailed curriculum,
- A description of the academic background and copy of academic records and most recent diploma,
- A cover letter describing why the candidate wishes to participate in this programme, a justification of the inter-disciplinary, inter-sectorial and international aspects of her/his research, his/her training project and career Plan including triple "I" dimensions, and his/her research's adequacy with one of the proposed topics
- 2 recommendation letters (including one from the master or equivalent diploma supervisor)

In order to apply, follow these steps:

- 1) First, verify that you fulfill the **eligibility criteria** listed below and in the call for candidates.

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2) Secondly, carefully read the proposed thesis projects and select **one** that interests you.

3) Thirdly, fill out the **Application Form on the website at doc2amu.univ-amu.fr** reading the instructions carefully.

4) Fourth, contact your referees for the Reference letters, and provide them with the proper template. Inform them of the closing date (June 24th 2016) and give them the proper transmission information (by email to the Project Manager: sarah.ethier-sawyer@univ-amu.fr)



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ELIGIBILITY CRITERIA

The following eligibility criteria must be fulfilled in order for an application to be evaluated by the Selection Committee. Applications not meeting the criteria will not be evaluated and will be rejected. For an application to be eligible:

- Specific Doctoral School requirements in terms of marks, experience, or any other matter that is a prerequisite to enrolment to the doctorate programme must be met. When applicable, specific doctoral school requirements are indicated in each Call for Candidates.
- The candidate must be **in the first four years** (full-time equivalent research experience) of their research careers (career breaks excluded) and **not yet been awarded a doctoral degree**;
- The candidate must be at the time of recruitment, **in possession/or finalizing the master degree** or equivalent degree which would formally entitle him/her to embark on a doctorate;
- The candidate must be **available** to engage in the programme at the starting date (December 1st, 2016);
- At the time of recruitment, the candidate may **not have resided or carried out his/her main activity (work, studies, etc.) in France for more than 12 months in the 3 years immediately prior to the reference date** (December 1st, 2016). Compulsory national service and/or short stays such as holidays in France are not taken into account;
- It must be submitted **on the Web Portal** before the deadline: **June 24th 2016, at midnight**;
- It must consist of a **complete** Application package. Incomplete applications will not be accepted.

All candidates will receive a receipt of application.

Candidates who do not pass the eligibility check will be informed by email and the reason(s) for rejection will be concisely stated. Candidates whose applications have been deemed ineligible will have an opportunity to submit a request for redress. The DOC2AMU Redress Procedure Following the Decision of the Selection Committee can be found on the website at: <http://doc2amu.univ-amu.fr/en/application-information/overview-of-the-selection-process-and-guidelines-for-evaluators>



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SELECTION PROCESS

Once the administrative eligibility check is passed, the selection process for candidates will be two-fold. First, the selection committee invites the doctoral supervisors to contact candidates applying for their thesis projects.

The selection committee, chaired by the Director of the Doctoral College and consisting of the coordinators of the PR2I³ and 6 external experts⁴, will carry out a preliminary evaluation of candidates and will select and support **1 candidate per thesis project**, taking into account the doctoral supervisor's assessment of the candidates' quality. This stage 2 is highlighted in red in Figure 1, below.

Each doctoral supervisor will prepare a letter of introduction on the selected candidate that will be added to the candidate's application documents for the next and final stage of the selection process.

For the **final selection stage**, the committee gathers its members with additional members: *1 representative of the Regional Council, 1 representative of the non-academic partners, 1 external expert selected for his/her knowledge of the MSCA and the COFUND projects and the European Project Manager.*

The Final Selection Committee will have at its disposal the complete application documents of the 20 candidates and the accompanying letter from the doctoral supervisor.

The candidates will be **invited for an interview** during face-to-face meetings with the committee if feasible, or per video-conferencing. Financial resources are planned to ensure a 2 days stay of the candidates who have the possibility to come to AMU. This stage 3 is highlighted in green in Figure 1, below.

Based on the scientific quality of the doctoral thesis topics, on the correspondence between candidates' profiles and the doctoral thesis subject, and candidate's motivation, the committee will select 10 candidates taking into account the accompanying letter from the doctoral supervisor. The 10 rejected candidates will be ranked in a complementary list and will receive a detailed evaluation on their application.

³ AMU's interdisciplinary and intersectoral research poles.

⁴ They will sign an appointment letter, including an agreement of nondisclosure/ confidentiality and conflict of interest before beginning their work. These rules will be adhered to at all times, before, during and after the evaluation.



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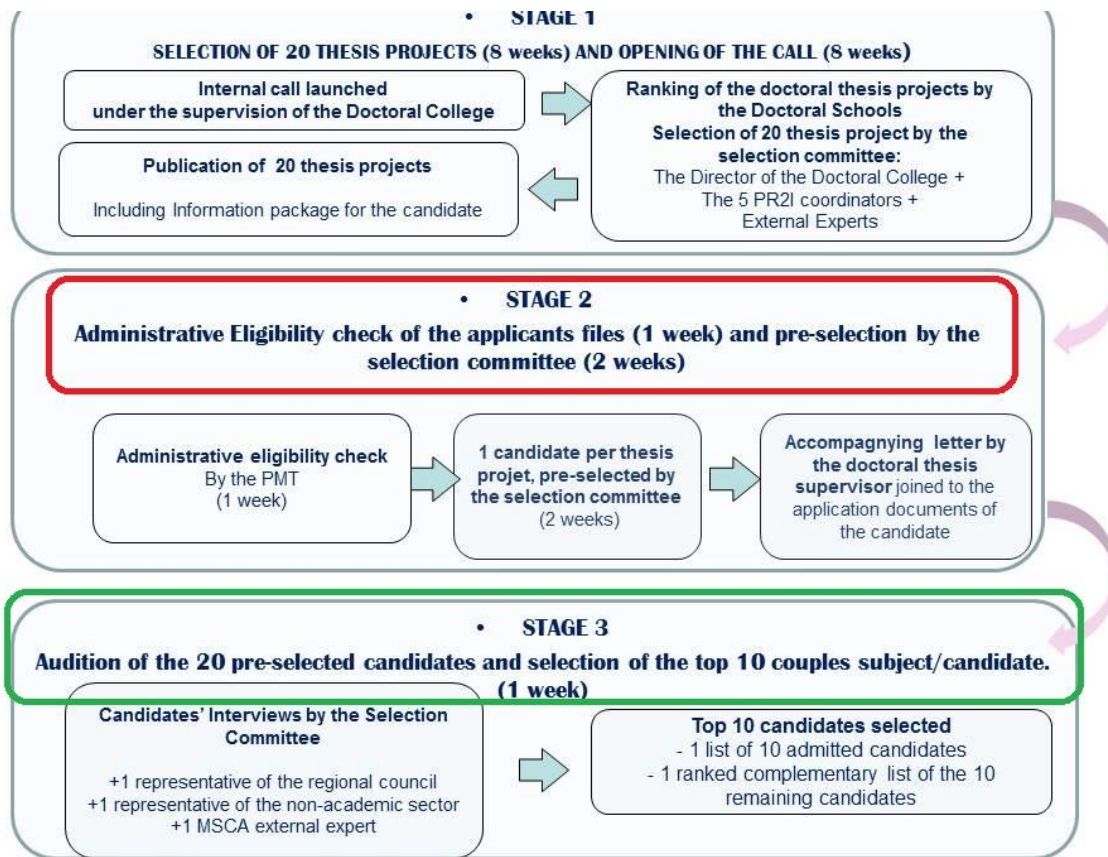
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At every stage of the selection process, the candidates will be informed on the status of their file, and will receive an Evaluation Summary Report if they fail in a selection stage, detailing their strengths and/or weaknesses. They will be entitled to initiate a redress procedure as stated by the national law if they contest the recruitment procedure. Eligible candidates will receive an acknowledgement when they pass a selection phase. The European Project Manager (EPM) will be available to answer the queries of the candidates through email or telephone.

Figure 1: Selection process flow





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SELECTION CRITERIA

The selection committee will evaluate the applications following the **Evaluation criteria at stage 2:**

Evaluation criteria STAGE 2	
<p>Criterion 1: University curricula, academic background matching with the research project, and academic records at master level or equivalent degree level</p>	✓ Scoring: 35%
<p>Criterion 2: Previous experience in interdisciplinary research or interdisciplinary character of his/her academic education, Internships in an academic or non-academic environment, experiences in foreign countries</p>	✓ Scoring: 15%
<p>Criterion 3: Creative and innovation potential, ability to go beyond expected paths</p>	✓ Scoring: 15%
<p>Criterion 4: Motivation of the candidate for research with interdisciplinary/inter-sectorial dimension</p>	✓ Scoring: 25%
<p>Criterion 5: Professional project after graduation</p>	✓ Scoring: 10%

At **stage 3**, the Final Selection Committee will evaluate the candidates following these criteria:

Evaluation criteria STAGE 3	
<p>Criterion 1: Profile of the candidate and Quality of the academic background</p>	✓ Scoring: 30%
<p>Criterion 2: Motivation and Professional Project</p>	✓ Scoring: 30%
<p>Criterion 3: Interview (candidate's appropriation of the subject, oral presentation and willingness to work in an interdisciplinary environment)</p>	✓ Scoring: 40%



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Evaluation scores will be given for each of the four criteria. Each criterion will be scored out of 5. Scores will be given with a resolution of two decimals place. A score 0 means that the application fails to address the criterion under examination or cannot be judged due to missing or incomplete information. A score 1 means poor and, therefore, that the criterion is addressed in an inadequate manner, or there are serious inherent weaknesses. A score 2 means fair and, therefore, that while the application broadly addresses the criterion, there are significant weaknesses. A score 3 means good and, therefore, that the application addresses the criterion well, although improvements would be necessary. A score 4 means very good and, therefore, the application addresses the criterion very well, although certain improvements are still possible. A score 5 means excellent and, therefore, that the application successfully addresses all relevant aspects of the criterion in question.

During the selection process and the implementation of the project, the selection committee, the thesis supervisors and the PMT will engage to prevent any type of discrimination, not only from the gender aspects but also taking into consideration age, disabilities, and return from a career break. AMU will guarantee, throughout the recruitment process of the fellows, that gender equality is respected by promoting genuine equal access opportunities between men and women, without, however, taking precedence over quality and competence criteria. Thus, gender equality will be promoted in DOC2AMU through a gender mainstreaming approach, with the following measures:

- Gender aspects and key reference documents will be included in the Guidelines for Evaluators available on the website.
- Half a day of training to raise awareness on gender equality in research will be organised for the fellows and the supervisors when the thesis begins.
- DOC2AMU will take into account career breaks in the evaluation of the applications. The reasons for career breaks can be due to a variety of personal reasons, including pregnancy, childcare, national service, temporary career change, unemployment, illness and travel. Candidates are therefore encouraged to submit evidence-based CVs, reflecting a representative array of achievements and qualifications appropriate to the position.

Together with gender issues, the selection committee and thesis supervisors will be attentive to the protection of equal opportunities at other levels, in order to make sure no discriminations occur because of nationality, age, or disability.



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WHY APPLY TO THE DOC2AMU DOCTORAL PROGRAMME?

DOC2AMU is co-funded by the prestigious Marie Skłodowska-Curie COFUND action within the H2020 Research and Innovation programme of the European Union and by the Regional Council of Provence-Alpes-Côte d'Azur, with a contribution from A*MIDEX Foundation. Within this programme, the PhD fellows will sign a three-year work contract with one of the 12 Doctoral Schools of AMU; these contracts come with numerous advantages.

These PhD fellowships are remunerated above that of a standard French PhD contract with a gross monthly **salary** of 2600 € and a gross monthly **mobility allowance** of 300 €, which after standard deductions will amount to a net salary of approximately 1625€/month (net amount may vary slightly; health insurance is included).

The mobility allowance is a fixed allowance and family status is not taken into consideration. The mobility allowance can, for example, cover the travel cost of family visits. A 500€ **travel allowance** per year and per fellow is also provided for the fellows to travel between Marseille and their place of origin.

Doctoral fellows will also benefit from:

- **1 welcoming day** that will be organized jointly by the Project Management Team (PMT) and the Department for Student Services and International Mobility of the PACA Regional Council. The fellows will receive a **welcome pack** at their arrival at the PACA Regional Council containing useful information (city map, transports information, money exchange offices, university restaurants, activities possible on and outside the campus and emergency numbers);

- **Support in the administrative issues** such as support by the PMT in application to legal papers (immigration related paperwork: visa application, resident card application/*carte de séjour*), affiliation to social security for health care support; assistance with administrative papers (registration to the Doctoral Schools/University) and to other procedures like opening a bank account;

- **Installation in university housing:** Each fellow will have the possibility to obtain an accommodation proposed by the CROUS (Regional Centre for University and Scholar Services/*Centre régional des oeuvres universitaires et scolaires*), a partner organisation of the programme. The fellow can ask for an accommodation in a residential housing offering high quality services on Aix-Marseille Campus, located either in Aix-en-Provence (at the Résidence internationale de Cuques) or in Marseille (at the Résidence Madagascar) in a studio apartment reserved in advance by the CROUS. The rent of the proposed studios is between 300 and 500€ per month;



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- **Local support** by the administrative support staff members to provide contacts with local doctoral researchers to facilitate the integration in the local student life and cultural activities, administrative procedures, and global workings of the university and city.

The fellows will be covered by a **compulsory health insurance** (MGEN) covering 70% of medical expenses. In case of sick or maternity leave of the fellows, the health insurance pays 90% of salaries. The fellow can also subscribe to a complementary health insurance that will cover all the other costs not covered by the compulsory health insurance. The fellows will also benefit from the support provided by the AMU Common service for social and cultural actions (Service commun d'action sociale et culturelle (SCASC)). The purpose of the SCASC is to support AMU staff in their professional and personal lives. Its two main scope of intervention are community care and culture through: payments of allowances (moving assistance, child care on Wednesdays, recreation activities); allowances (subsidised canteen on campus); sport activities on university sites and reduced tickets for shows and theatres in the PACA region.

-**Tailored training and personalised mentoring**: Fellows will define and follow a Personal Career Development Plan at the beginning of their Doctoral thesis and will have access to a variety of training options and workshops. The dedicated Supervisory Committee (STSC) will follow and advice the fellow at least once a year on his/her training strategy regarding his/her job prospects.

-**Financial support for international research training and conferences participations.**

-A **contribution to international training** will be provided for the benefit of the fellow. It will comprise of a 10 000€ per year allowance for international mobility (covering international travels related to the thesis work).

-A **research allowance** covering costs associated with scientific activities of the fellow to cover certain expenditures of her/his project. These include, as example: consumables and/or supplies; equipment (eligible only if it is needed for the research project of the employed fellow); fees for scientific journals, and memberships in scientific associations.



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APPOINTMENT CONDITIONS AND RESPONSIBILITIES OF THE FELLOW

Successful candidates will be required to communicate their acceptance to the DOC2AMU PMT within 14 days of receiving email confirmation of the success of their applications. Failure to do so will result in the position being offered to the next candidate on the reserve list.

A formal employment contract will be signed between the fellow and AMU. The European Charter for Researchers and the Code of Conduct for the recruitment of researchers offer a reference framework for the employment of researchers⁵. The fellow will be employed through a **contract** with the position of non-civil servant under public law, which includes full social coverage (including sick and maternity leave). He/she will have **50 days of annual leave during the 1st year, 58 in the 2nd and 58 in the 3rd**. The fellow will also contribute to a **retirement pension and unemployment insurance contributions**. A working week will comprise five days of eight hours per day. The fellow is expected to work full-time except for parental care, and may not take part in other paid activities such as teaching.

As a DOC2AMU Doctoral Fellow, the fellow will also be a Marie Skłodowska-Curie fellow. The fellow will benefit from the DOC2AMU mentoring programme which aims to support him/her in developing a successful career. The fellow will be required to take part in the DOC2AMU annual Doctoral Days meetings, to continuously update his/her career development plan and to submit an annual presentation to the **Scientific & Training Supervisory Committee** during the Doctoral Days meetings.

The fellow will also have to take up at least 100 hours of training (50 hours of scientific and interdisciplinary training/courses and 50 hours of transferable skills trainings), over 3 years, complementary to his/her own research project (for more information, see *Supervision and Training Programme* section). The fellow will have to write an annual report detailing the research project progress and the validation of the followed training units (TU). The Personal Career Development Plan will be updated every 6 months and after each validation of TUs and each achieved milestone.



All publications or any other dissemination relating to the thesis project **shall include the following statement and logo** to indicate that said work was generated with the assistance of financial support from the European Union:

⁵ http://ec.europa.eu/eracareers/pdf/am509774CEE_EN_E4.pdf



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“This project has received funding from the European Union’s Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No713750”.

This statement will have to be translated into the language of the dissemination activity. Translations in all European Union languages will be provided.



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SUPERVISION AND TRAINING PROGRAMME

DOC2AMU fellows will benefit from specific supervision arrangements and will be offered a comprehensive range of professional and interdisciplinary training programmes of at least 100 hours of training per fellow over 3 years, complementary to their own research project. They will be offered a Doctoral training of excellence to help them prepare their professional integration after graduation and provide them with the best career perspectives.

Supervision arrangements:

DOC2AMU has been designed to provide fellows with a high quality Doctoral supervision and training both on the nature of the research project and on their integration outside the academic world. This implies a strong support from the Doctoral Supervisor, the associated Doctoral School and the Doctoral College as well.

Fellows' supervision and mentoring will include 3 levels:

- Level 1/Academic Supervisor:** For each fellow, **1 experienced academic supervisor**, responsible of the selected thesis project, will be appointed. As detailed in the AMU Doctoral Theses Charter, each supervisor has a limited number of Doctoral researchers under his/her direct supervision (up to 3 for hard sciences and up to 10 for other scientific disciplines). The supervisor and the fellow will establish a yearly **Personal Career Development Plan** that will summarize:
 - the **individual training programmes' objectives and implementation** (core scientific and technical training as well as complementary skills trainings) encompassing planned secondments;
 - Career prospects beyond the project.** This will be the **roadmap** for the overall fellow supervision and should be presented annually to the **Scientific and Training Supervisory Committee (STSC)** (updates, additional identified needs, deviation, and development of career prospects). The Supervisor will meet the fellow **on a weekly basis** to discuss the advance of the research project and to advice the fellow on how to reach her/his research targets. The supervisor will also assist the fellow in his/her contacts with external partners and collaborators (in Europe and elsewhere) relevant to his/her future career perspectives.
- Level 2/Non-academic and/or International secondment tutor(s):** During secondment period(s), an appointed tutor in the other institution(s) (non-academic and/or international) will ensure the fellow supervision. **At least 1 meeting/conference calls** every two weeks will be organised with the **AMU supervisor** during the secondment period



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to assess her/his research and training progress. Short minutes of these meetings will be included in the **fellow's annual report**.

- Level 3/ The Scientific & Training Supervisory Committee (STSC)** will be responsible for ensuring the scientific and training follow-up of each fellow and will suggest, if needed, adequate reorientation/corrective measures to be agreed by the fellow's supervisor and the linked Doctoral School. It will oversee each fellow's **annual report** and **Personal Career Development Plan**. Each fellow will undertake annual presentations to the STSC during the **Doctoral Days Meetings**. They will present their personal challenges and difficulties, and discuss the actions that can be taken to overcome obstacles that will possibly arise as the research progresses. One hearing of each fellow and her/his supervisor(s) will be organised in the middle of the doctoral programme to ensure that the fellow has the necessary support to achieve his/her scientific and training objectives. The STSC may provide a list of recommendations to both the fellow and his/her supervisor. During the 3rd year, the fellows will be encouraged to detail the future steps of their career, including identification of job opportunities, plans for future Post Docs, wishes for positions, contacts and planned applications, etc.

The Scientific and Training Supervisory Committee (STSC) is chaired by the Programme coordinator (the Director of the Doctoral College) and composed of 1 representative of the 5 PR2I coordinators, 1 representative of the concerned Doctoral School, 1 representative of the non-academic partners, 1 external expert selected for his/her knowledge of the MSCA and the COFUND projects, and the EPM.

Training:

DOC2AMU is designed to:

- Provide the fellow with the **highest scientific and technical quality interdisciplinary training** as well as a **wide variety of transferable skills knowledge** that covers both the academic and the non-academic sectors;
- Offer an innovative **inter-sectorial and international training** scheme;
- Facilitate **comprehensive exchanges between the academic and the non-academic sector** for all fellows;
- Enhance **Doctoral Education at AMU** and strengthen its visibility and attractiveness;
- Impulse a leverage between AMU and CR PACA doctoral programmes and eventually to the whole PACA region in terms of **spreading best practices on innovative Doctoral programmes**;
- Foster fellows' **autonomy and maturity** by promoting individual initiatives (e.g.: social events organisation, participation to outreach activities, etc.);



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- Enhance **career perspectives** for the recruited fellows through the acquisition of transferable skills for their strategic and personal career developments.

Like any Doctoral Education Programme, **DOC2AMU** has the ambition to train fellows to become expert in their scientific field and to meet their potential educational goals. Going further, it also aims to include in their training a strong transferable skills component in order to prepare them for their future career and to provide them with the best chances to find a job either in public or in private sector.

Each recruited fellow, depending on their background, their research project, their Personal Career Development Plan and their career prospects, will have to determine a **training scheme** combining available options of the 3 international/inter-sectorial and interdisciplinary dimensions.

The global scheme is based on:

- A **core scientific and technical doctoral training** at their host lab(s) with one period of secondments or short stay in non-academic partners or international institutions, based on their research project as described below,
- A **common transferable skills training** based on a comprehensive package of 3 mandatory trainings modules to follow during the 3 years of the Doctoral thesis to be given in English (and potentially open to other AMU Doctoral researchers),
- An **individual** and very regular **supervision and monitoring** that will be provided by the supervisor(s) from the host lab(s), a tutor (secondment period), and the Scientific & Training Supervisory Committee (STSC),
- An adequate environment to obtain within 3 years her/his **Doctorate degree**, with at least one secondment period in the non-academic sector (industrial or other),
- Optional **IMÉRA workshops**, designed for stimulating the breakthrough potential of interdisciplinary approaches.

The DOC2AMU training structure, designed both by academic and non-academic partners, is based on **training units**. These training units are separated into **disciplinary scientific training units** (scientific knowledge necessary to the conduction of the research in a given field), **interdisciplinary training units** (to be validated as mandatory training units by the Doctoral Schools), and **transferable skills training units**.

In terms of workload, the Doctoral College of AMU requires that within the training programme of each fellow a minimum of 50 hours should be dedicated to scientific and interdisciplinary training/courses and 50 hours to transferable skills trainings. The **2 months secondment** in non-academic sector or in international institutions can be done in 1 or several periods and is an integral part of the fellow's research project.



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All fellows will have to:

- Comply with the **Doctoral school requirements** in terms of number of training hours and compulsory training units, and publish at least **one article as first author in a peer reviewed scientific journal and have material for 2 other articles** (usually at least one of these two being submitted). This is a pre-requisite to get approval for Doctoral thesis defence by the AMU Doctoral schools
- Take part to the **outreach and dissemination activities** and be **involved in the social events organisation** of the Doctoral School of attachment.
- **Train on skills within the chosen discipline and/or to gain new skills**

In the **Personal Career Development Plans**, fellows and supervisors will have to identify scientific trainings necessary to accomplish the Doctoral research project and complete the scientific education of the fellow. Part of these scientific trainings is available within AMU Doctoral Schools (the list of available training is updated every university year by Doctoral Schools). Fellows will also have to perform a 2 months secondment period in an international institution, international academic laboratory or non-academic partner.

Fellows who have research projects involving animals will have to attend a **mandatory training to get accreditation from the French authorities to perform experimentations on animals**. This training covers animal welfare and handling, ethical and legislation issues, surgery and basics in animal care and ethics related to animal experimentation. The main objective of this course will be to instruct new researchers in the animal techniques and experimentation and ethics-related issues dealing with animal experimentation in animal facilities compliant with the EU requirements (European directive 2010/63/UE) and the applicable French decrees (Decrees N° 2013-118 of 01/02/2013). *Note that as part of the first mandatory training every fellow will be trained on ethics in research, regardless their thesis subject.*

Fellows will also be invited to participate to the **networking events organised by Competitive Clusters**.

Finally, to facilitate the fellow's comprehension, cultural immersion and integration and to be able to follow some of the Doctoral School courses taught in French, intensive **French language classes** can be followed early in the Doctoral thesis for non-French speaking international fellows. The possibility to attend local scientific seminars and workshops will also provide language exchanges.



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ADDITIONAL INFORMATION

All inquiries should be addressed to the Project Manager

By email: sarah.ethier-sawyer@univ-amu.fr

By telephone: +33 4 91 99 85 95

For information on life in Marseille and Aix-en-Provence, please refer to the Directorate of International Relations's **International Student Handbook**, downloadable at:

http://dri.univ-amu.fr/sites/dri.univ-amu.fr/files/public/student_handbook_2015.pdf



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ANNEX I: RESEARCH AREAS

When designing the DOC2AMU programme, six main interdisciplinary research axes were selected to correspond with high-level expertise of several AMU research units linked to different sectors (PR2I). These axes were presented to AMU researchers who submitted the thesis projects selected and published in the Calls for candidates. For information, here is a description of each axis and its relation to AMU expertise.

- ***Imaging***

Imaging is one of the strongest interdisciplinary and intersectoral research axes at AMU. Imaging for life sciences (Bio Imaging and Biomedical imaging) is at the crossroad between engineering disciplines, such as optical, acoustic and computer sciences or chemical, biological and medical disciplines. 26 laboratories are developing research in this field, including economy and social sciences. At AMU research activities in this area are structured, on one hand, through two national networks, namely France Bio Imaging (FBI) and France Life Imaging (FLI), and on the other hand by the CERIMED centre (European Centre for Research in Medical Imaging) which is implemented at the Timone campus. Moreover, la Timone hospital hosts a high level imaging facility with a MRI 7T equipment, the second in France, for clinical research. The imaging research activities at AMU also concern imaging for space and earth, as well as imaging for archaeological purpose in interaction with social sciences. In all these areas, the research activities will be focused on the development of new multimodal and multiscale imaging approaches to improve the resolution and the contrast; image processing; modelling; new tracers.

- ***Nano-health***

Nano sciences and Nanotechnologies have been identified as the most promising interdisciplinary topics in Sciences and Technologies at AMU, based on the high expertise being developed in this area at AMU laboratories and the huge potential of this subject. "Life Sciences and Health" also represents a major scientific, medical and societal issue and Aix-Marseille is the second French pole in this field. The positive (therapy) and negative (toxicity) impacts of nano-objects and nano-materials on Health appear to be more and more important. The research topics in this domain will be focused on nano-tracers for diagnostics, drug delivery, drug chemistry, cell dynamics, and toxicity of nano-materials ... These research topics concern more than 20 AMU laboratories. 'Nano' is also a 'hot' societal topic and this aspect will be a priority of the interdisciplinary research that we would like to promote through DOC2AMU project.

- ***Big data***



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The theme 'Big Data' concerns the five interdisciplinary and intersectoral research poles of AMU. More than 25 research laboratories are directly involved in this topic, either as specialists of the subject (computer sciences, mathematics ...) or as users. On one Hand, strong expertise, based on existing infrastructures, is developed in data mining, data preservation, data sharing and security, and on the other hand many applications of the big data are developed in the fields of astrophysics (CeSAM databases -<http://cesam.lam.fr/cesamdata>), environmental sciences, economy, smart grids, particle physics (http://www.cppm.in2p3.fr/rubrique.php3?id_rubrique=52&id_parent=7&lang=fr&lang=en), digital humanities (TGIR Huma-Num - <http://www.huma-num.fr>) , life sciences... DOC2AMU project is a unique opportunity to share this expertise and to promote interdisciplinary research in Big Data which take into account both the applied physics in data treatment, specific applications (energy, environment, health, physics, and humanities) and the societal and economic impacts.

- **Networks**

Networks are at the root of all human organisations and activities (social, economic, political, travel, energy...) and, at a much lower scale, an indispensable dimension of molecular organisations to build materials and generate functions in living organisms. Strong expertise is present at AMU in the discovery of networks and understanding of their laws and modes of regulation in AMU priority areas: Environment, Energy, Sciences and Technologies, Humanities and Health and Life Sciences. This is an excellent ground to generate opportunities for interdisciplinary projects in biology/medicine (modelling of complex biological systems using omics and bioinformatics, design of chemical compounds interfering with biological networks to treat diseases), Energy and environment (development of appropriate tools for management and optimisation of energy systems and networks especially for renewable energies), Humanities and Technologies (Mathematics and Computer Sciences) in the frame of DOC2AMU project.

- **Globalization**

Globalization is an important interdisciplinary research field at AMU, bringing together different perspectives in economics, law, history, politic sciences, sociology as well as psychology, linguistics, etc. It relies on fundamental as well as applied works, involving modelling, experimentation or theoretical elaborations. Anchored in Humanities, this topic addresses questions from all scientific sectors around themes like epidemiology, technology dissemination, energy production, sustainable development, internationalization of technical, ethical and legal standards, etc. This strategic domain is explored through different directions: paradoxical globalization (globalization can be at the same time a source of growth and of increased instability), inequalities and poverty (enlarging exchanges sharpens competition), emergence of global phenomena (effects and role of networks), public intervention (coherence between local, national and supra-national



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levels), emergence of technical and professional standards, basis of a parallel normativity (firms, activists and financial networks challenging the rules and/or participating to the emergence of new technical, legal and ethical standards), etc. In the DOC2AMU framework, we propose to push forward new interdisciplinary questions, enlarging the scope of this topic from Humanities to other sciences.

- ***Climate change***

Climate change issues strongly concern the Environment and Energy Interdisciplinary Research Poles of AMU. This topic is currently well developed, structured and supported with a great visibility and a real interdisciplinarity (Geoscience, Ecology, Oceanography, Engineering, Biology, Chemistry, Social sciences, Economics, Law ...) with more than 22 AMU research labs. For an environmental point of view, it is now important to increase research and knowledge in the study of ecosystem functioning and resource management in a context of Climate Change. Similarly the use of low-carbon energy is an essential alternative to meet the challenges related to climate change due to anthropological activities. In this context at AMU, research is focused on basic science for energy in the disciplines of science and technology (mathematics, biology, physics, chemistry, mechanics ...) as well as in social sciences and humanities (sociology, economics, geography ...). DOC2AMU project is a unique opportunity to develop interdisciplinary research on the impacts of climate change and the ways to reduce the massive use of fossil fuels and expand the use of low-carbon energy (renewable and nuclear energies).



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ANNEX II: ETHICAL ISSUES

Ethics is central to scientific integrity, honesty and clarity of science. This means that in any application submitted to the Horizon 2020 programme, including DOC2AMU Doctoral programme, ethics issues must be identified and addressed. Once the Final Selection Committee has selected the fellows, they will be required to complete an **Ethics Issues Table (EIT)**. The objective of the pre-screening is to list the (potential) ethical issues but not to assess them.

Those who flag ethics issues will have to complete in addition a more in depth **Ethics Self-Assessment**. **Both these phases will be achieved in collaboration with their future supervisor**. The goal is to assess the **ethical aspects of their objectives, methodology and potential impact**. The Ethics experts will notably **identify the projects that require ethical approval** at the national level (e.g. with regards to data protection, the conduct of clinical trials and animal welfare). The Ethics Review Procedure will focus on the compliance with ethical rules and standards, relevant European legislation, international conventions and declarations, national authorizations and ethics approvals, proportionality of the research methods and the selected fellows' awareness of the ethical aspects and social impact of their planned research.

Finally, during the implementation of the fellows' research projects, the EPM will follow and monitor the flagged Ethics issues and their compliance with the French and EU legislation. The EPM will collect all necessary data and documentation.