



UNIVERSIDADE DE ÉVORA

EARTH SCIENCES INSTITUTE (ICT)
Master's Scholarship - 1 VACANCY

November 27th, 2024

A call for tenders is open for one Master's scholarship within the scope of the project "GeoMinA - Implementation of a basis for defining geoenvironmental models in abandoned mining areas in the Iberian Pyrite Belt", reference PL23-00035, financed by national funds through "La Caixa Foundation" through the Program "Promote the Future of the Interior - 2023 Competition", under the following conditions:

Scientific Area: Environmental Geochemistry

Admission requirements:

Degree in Earth Sciences, Master's Degree in Geology/Geochemistry, with extensive knowledge in Analytical Geochemistry, Geological and Mining Cartography using multispectral data and Statistical Analysis using R software. Preferred factors will be: (1) extensive knowledge of geochemistry, in particular of major elements and potentially toxic elements in various geological materials, (2) analytical experience of using the equipment required for geochemical studies, in the laboratory (inductively coupled plasma-optical emission spectrometer (ICP-OES), elemental analyzer, high-pressure microwave digestion systems) and in the field (portable XRF), (3) experience in interpreting geochemical and mineralogical data, (4) experience in using drones and satellite images in geological and mining cartography, particularly with regard to creating orthophotomaps and multispectral maps, (5) experience in analyzing and processing geochemical and multispectral data, particularly using R software.

As set for the FCT Research Scholarship Regulation No. 950/2019 of December 16, 2019, article 3 and 6, candidates for "BI" (Research Grants) must comply as a rule condition for the award of the scholarship, the effective inclusion in study cycles leading to the attribution of academic degrees or in courses not leading to an academic degree. Courses that do not confer an academic degree correspond to the courses provided for in subparagraph e) of paragraph 3 of article 4 of Decree-Law No. 74/2006 of 24 March and must be developed in a higher education institution in association with at least one R&D unit, including a course plan in one or several research areas of the unit.

Work plan:

(1) Construction of a database for the selected mining areas (type of drainage, mineralogy of alteration, geochemical and textural attributes of the whole area affected by the former mining activity and the mine tailings);



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- (2) Photogrammetric survey using a drone equipped with a multispectral camera and LIDAR to acquire digital terrain models and orthophotomaps. The information obtained will support the delimitation and characterization of the drainage basins and the definition of a sampling grid for the different components of the study;
- (3) Sampling of mine tailings, soils and sediments according to the previously defined sampling grid;
- (4) Large-scale, in situ geochemical analysis by portable X-ray fluorescence (pXRF) in soils and stream sediments, to select target areas for smaller-scale sampling.
- (5) Support in the laboratory analysis of samples relating to all the components of the study, using ICP-OES and a CHNS elemental analyzer;
- (6) In each mining context studied, and for each point in the defined sampling grid, construction of a synthesis variable based on geochemical, textural and mineralogical data in different media and at different scales, with dimensionality reduction using data reduction methods (geospatial analysis, hierarchical agglomeration methods, among others).
- (7) Obtaining reflectance spectroscopy data from available satellites, which will be complemented with high-resolution spectral data from drones equipped with multispectral probes, in order to identify mineralogical associations associated with mineralization and alteration.
- (8) Cross-checking the values of the synthesis variable with the spectral data, using artificial intelligence methods and quantifying the degree of association between them. This data will be used to create thematic maps of the different types of contamination for each mining area and will form the basis for implementing a geo-environmental model characteristic of each type of abandoned mine in the FPI.

Applicable legislation and regulations: The granting of the Research Scholarship will be carried out upon the signing of a contract between the University of Évora and the scholarship holder, according to the version in **Annex I**, pursuant to the Research Scholarship Statute (Law no. 40/2004 of August 18, as amended) and considering the provisions of other applicable legislation and regulations, namely, the Research Grant Regulations of the University of Évora (published by Order no. 8131/2024, of July 22, 2024), and the Research Grant Regulations of the Science and Technology Foundation, I.P. (Regulation no. 950/2019, of July 22, 2024).⁹ 8131/2024, of July 22, 2024), <https://files.diariodarepublica.pt/2s/2024/07/140000000/0035300366.pdf> and in the Research Grants Regulations of the Foundation for Science and Technology, I.P. (Regulation no. 950/2019, of December 16, as amended).



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Place of work: The work will be carried out at the ICT and the AmbiTerra Laboratory of the University of Évora, under the general coordination of the Administrator of the University of Évora and the scientific supervision of Professors Pedro Miguel Madureira Pimenta Nogueira and Rita Maria Ferreira da Fonseca, who will be required to draw up an opinion on the final report on the grant's activities (Annex II), in accordance with the draft in Annex III.

Duration of the scholarship: The scholarship will last for 6 months, starting on February, 2025. The scholarship contract may be renewed until the end of the funding project's budget allocation.

Amount of monthly maintenance allowance: The amount of the scholarship corresponds to €1259.64, according to the table of values of scholarships awarded directly by FCT, I.P. in the country (https://www.fct.pt/wp-content/uploads/2024/02/Tabela-de-Valores-SMM_atualizacao-2024.pdf), payments are made monthly by check or bank transfer.

Selection methods: The selection methods to be used will be as follows:

CP1: Curriculum evaluation (0 to 4 points), corresponding to 20% of the final classification,

CP2: Knowledge and analytical experience in the field of geochemistry, namely in the use of the equipment required for geochemical studies, in the laboratory (inductively coupled plasma-optical emission spectrometer (ICP-OES), elemental analyzer, high-pressure microwave digestion systems) and in the field (portable XRF) (0 to 5 points), corresponding to 25% of the final classification.

CP3: Knowledge and experience of using drones and satellite images in geological and mining cartography, particularly with regard to creating orthophotomaps and multispectral maps (0 to 5 points), corresponding to 25% of the final classification

CP4: Knowledge and experience in analyzing and processing geochemical and multispectral data, namely using R software (0 to 6 points), corresponding to 30% of the final classification.

The successful candidate will be the one who, according to the weighting factors from 1 to 4, obtains the highest numerical value for the sum of all factors.

Classification = $\sum C_{pi}$ (1...4)

Composition of the Selection Panel:

President: Prof. Dr. Rita Maria Ferreira da Fonseca

1st Member - Prof. Dr. Pedro Miguel Madureira Pimenta Nogueira

2nd Member - Prof. Dr. António Alexandre Ventura Araújo

1st Substitute - Dr. Ana Catarina Gomes Pinho

2nd Substitute - Dr. Noel Alexandre Fontes Moreira



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Advertising/notification of results:

The final results of the evaluation will be publicized by means of a list ordered by final grade obtained, posted in a visible and public place next to the Secretariat of the Institute of Earth Sciences of the University of Évora, located at Colégio Luís António Verney, Rua Romão Ramalho, nº 59, 7002-554 Évora, being the candidate approved notified by e-mail.

To ensure the right of prior hearing of interested parties, the Final Classification project will be announced by any written means to all interested parties.

After communicating the provisional list of the results of the evaluation, candidates have a period of 10 working days to express their opinion in a preliminary hearing of interested parties. Based on the final ranking list, a reserve selection list will be drawn up, to be used for the possible recruitment of new scholarship holders within the scope of this project, up to the duration of the scholarship, which may be used in the eventuality of the first ranked candidate withdrawing, failing to present the mandatory documentation, or in the event of the scholarship holder canceling their scholarship early. In the eventuality that none of the candidates demonstrates the profile required to carry out the work plan, the jury reserves the right not to award the scholarship.

Application Deadline and Submission Process: The competition is open from December 4 to December 18, 2024, and the selection results will be published by December 31, 2024.

Applications must be formalized, obligatorily, by sending an application letter with the following documents: Curriculum Vitae, certificate of qualifications and other supporting documents considered relevant).

For the purposes of application, the evidence may be replaced by a declaration of honor signed by the candidate, but the failure to demonstrate that evidence, in the contracting phase, possession of the required degree on the deadline for application or the non-presentation of proof of enrollment in the study cycle or non-degree course, for scholarships with this component, imply the cancellation of the candidate's application.

Academic degrees obtained in foreign countries require registration by a Portuguese Institution in accordance with Decree-Law no. 66/2018, of August 16 and Ordinance No. 33/2019, of January 25th.

The presentation of the certificate is mandatory for the signing of the contract. More information can be obtained at: <https://www.dges.gov.pt/pt/pagina/recognition?plid=374>

Applications must be sent by email to:

Prof. Doutora Rita Maria Ferreira da Fonseca.
Instituto de Ciências da Terra da Universidade de Évora
e-mail: rfonseca@uevora.pt



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ANNEX I
MINUTE SCHOLARSHIP CONTRACT

Between,

FIRST PARTY: The _____ (name of organisation), com sede em _____ with registered office at _____ (address of registered office of organisation), with tax number _____, represented in this act by _____ (name of representative of organisation), in the capacity of _____ (Director/President) of the contracting/financing organisation, hereinafter referred to as the "First Party", and

SECOND PARTY: _____ (*name of grantee*), holder of ID card/passport no. _____ (*ID card/passport no.*) and taxpayer no. _____ (*taxpayer no.*), resident at _____ (*address of grantee*), hereinafter referred to as the "Second Party".

whereas,

The application requirements for the award of the scholarship under the call _____ (*call identification / call notice reference*) have been met, the process of evaluating the candidates and publicising the results has been completed and the required documentation has been received.

This scholarship contract is entered into in good faith and mutually accepted, under the terms of the Research Fellow Statute, and is governed by the following clauses:

FIRST CLAUSE

The First Party undertakes to award the Second Party a grant _____ (type of grant and reference of the call for tenders), within the scope of the project _____ (type of project) / R&D unit with the reference _____ (reference of the project or unit) and with the title _____ (title),

(Reference should be made to the sources of funding for the project/unit).

- with 100% OE funding - Mention of funding: financed by the Foundation for Science and Technology, I.P./MCTES through national funds (PIDDAC)

- With FEDER co-financing - Mention of funding:

Financed by the European Regional Development Fund (ERDF) of the European Union, through (indicate which Operational Programme it finances) Portugal 2030 or other programmes that may succeed it) starting at _____ (date of start of the scholarship), for a period of _____ months, possibly renewable (as defined in the call for proposals).

SECOND CLAUSE

In the alternative, the FCT Research Grant Regulations apply, of which the Second Party declares that it is aware.

THIRD CLAUSE

The Second Party undertakes to carry out the attached work plan, the content of which he/she declares that he/she has taken full cognisance of and accepts unreservedly, from the above-mentioned start date and on an exclusive dedication basis, under the terms of article 5th of the Research Fellow Statute.



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FOURTH CLAUSE

The Second Party will carry out the work at _____ (*name of the host institution as defined in Article 3(g) of the FCT Research Grant Regulations*), which acts as the host institution, with _____ (*name of the supervisor and affiliation institution*) as the scientific supervisor.

FIFTH CLAUSE

1. The monthly maintenance allowance awarded is _____ (€...,00).
2. The Second Grantor also benefits from personal accident insurance for the duration of the grant, the conditions of which he/she declares to have read and accepted without reservation.
3. The following scholarship components are also added _____ (*specify the applicable components in the terms set out in the FCT Research Grant Regulations*).

SIXTH CLAUSE

The First Party may cancel the grant and the Second Party may be obliged to refund all or part of the sums received in the following cases:

- a) a) Serious and repeated failure to comply with the Second Party's obligations under the Research Grant Holder Statute and the FCT Research Grant Regulations, for reasons attributable to the Second Party;
- b) b) A negative evaluation of the Second Grantor's performance by the supervisor or the host organisation under the terms of the FCT Research Grant Regulations;
- c) c) False declarations by the Second Granting Party on matters relevant to the award and renewal of the grant or to the assessment of its development.

SEVENTH CLAUSE

Without prejudice to the provisions of the previous clause, this contract shall terminate automatically:

- a) Upon completion of the activity plan;
- b) End of the period for which the scholarship is awarded;
- c) Repeated non-compliance by one of the parties;
- d) Revocation by mutual agreement;
- e) Establishment of a legal employment relationship with the host organisation.

EIGHTH CLAUSE

1. The rights and duties of the parties are those resulting from the provisions of the Research Fellow Statute.
2. The Second Party declares that he/she has read the Research Fellow Statute and the applicable Regulation(s) and undertakes to comply with their provisions.

NINTH CLAUSE

It is agreed between the parties, that in case of need and to settle all questions arising from this contract, the District Court of _____ (*name of the District*) shall have jurisdiction, expressly waiving any other.



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TENTH CLAUSE

Any changes to be made to the contract in the course of its performance shall be the subject of prior written agreement.

ELEVENTH CLAUSE

1. This contract shall take effect on the date it is signed by both parties.
2. The grant awarded under the terms of the FIRST CLAUSE of this contract may be renewed for additional periods of (...) months, up to a maximum of (...) months, under the terms of article 15 of the FCT Scholarship Regulations.
3. [ONLY FOR RESEARCH SCHOLARSHIPS, otherwise withdraw]: The award of the academic degree (or diploma) during the term of this contract shall not affect its effects, and the grant referred to in the preceding paragraph may be renewed at a later date, provided that it is aimed at carrying out activities that are indispensable for the completion of the project (...).
4. The concrete definition of the activities referred to in the previous paragraph is the responsibility of the First Party, after hearing the Second Party and the Scientific Advisor, and they must be included in the agreement to be signed, as provided for in the previous clause.

_____, _____ of _____

The First Party

The Second Party

(Signature and stamp of the organisation)

(Signature of the grant holder or his/her proxy)



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ANNEX II

FINAL REPORT FORM (Fellowships)



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UNIVERSIDADE DE ÉVORA
Largo dos Colegiais, N.º 2
Apartado 94
7002-554 ÉVORA PORTUGAL
Telefone (telephone): +351 266 760 975
Mail: cop@uevora.pt

Referência da bolsa (Grant Reference)	
Organização (Organisation)	

DETALHES DO BOLSEIRO / FELLOWSHIP DETAILS

Título (Title)	
Nome próprio (Forename)	
Apelido (Surname)	
Organização (Organisation)	
Departamento ou Centro (Department or Centre)	
Supervisor (Supervisor)	

DETALHES DO PROJETO / PROJECT DETAILS

Título da Bolsa (Grant Title)				
Referência da bolsa (Fellowship reference)				
Período da bolsa (Period of Review)	Data de Início: (Start Date):		Data do Termo:	



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OBJETIVOS / OBJECTIVES

Objetivos originais como constam na proposta (Original objectives as presented in the proposal)

Estes objetivos permaneceram válidos durante o período da bolsa, ou
(These objectives remained valid throughout the Fellowship *(tick box)*, or

☐

Estes objetivos foram modificados
(explique como/ porque no seu relatório)
(These objectives were changed) *(tick box)*.
(If so please explain how/why in your report)

☐

Novos objetivos (New objectives)

Sumário dos resultados do projeto: descreva em termos simples o seu trabalho de forma a que possa ser divulgado perante uma audiência genérica
(Summary of project outcomes: In simple terms describe your work in such a way that it could be publicised to a general audience.)

Endereço de página com mais detalhes, se desejar: (Web address with further details if you wish)



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RESULTADOS DA BOLSA / OUTCOMES OF THE FELLOWSHIP

Os principais benefícios das bolsas concedidas pela Universidade de Évora incluem:

(Major benefits of Évora University Fellowships include:

- i) os impactes potenciais sobre as carreiras dos bolseiros e
(the potential to impact positively on the careers of individual Fellows and)
- ii) os resultados da investigação
(the research results)

RELATÓRIO DAS ACTIVIDADES DESENVOLVIDAS / REPORT ON WORK UNDERTAKEN

Utilize o número de páginas necessário (please continue on additional pages as required)

Participação em conferências científicas, no país e no estrangeiro (nome, local e data)
(Scientific Conference attendances – name, location and date)



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RESULTADOS DA INVESTIGAÇÃO (RESEARCH RESULTS)

Publicações/ Publications

(1) Enuncie quantos resultados da investigação resultaram principalmente da investigação financiada através desta bolsa e indique o tipo (revista, conferência, livro, patente, software, outro).

(Please state how many research results have resulted principally as a result of the research funded through this grant and indicate the type (journal, conference, book, patent, software, other))

	REVISTA (JOURNAL)	ARTIGOS EM CONFERÊNCIAS (CONFERENCE PAPERS)	LIVRO OU TESE (BOOK OR THESIS)	PATENTE (PATENT)	SOFTWARE	OUTRO OTHER
Número total de publicações / Total Number of Publications						
Número de Publicações com arbitragem científica (se diferente do anterior) / Number of Refereed Publications (if different from above)						
Número de Publicações que contêm um coautor estrangeiro / Number of Publications That Contain An International Co-Author						

(2) No caso de Bolseiro de mestrado ou doutoramento, reference os dados relativos à tese: (In the case of Master or Ph.D. Fellowship, please indicate:)

Título da tese/ Thesis title:

Classificação obtida / Classification:

Universidade e data/ University and date:



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- (3) Liste até cinco publicações que resultaram principalmente da investigação financiada através da Bolsa e indique o tipo (revista, ata de conferência, livro, patente, software, outro); se houve coautores estrangeiros ou industriais e se a publicação foi sujeita a arbitragem científica. / Please list up to five significant publications that have resulted principally as a result of the research funded through this grant and indicate the type (journal, conference, book, patent, software, other); whether there was an international or industrial co-author and whether the publication was refereed.

AUTOR(ES) (AUTHOR(S))	TÍTULO (TITLE)	REFERÊNCIA (REFERENCE)				TIPO (TYPE)	Arbitragem? Refereed?	Industrial co-author?	International co- author?
		Revista/Ata de Conf. (Journal/Conference).	ano (year)	Vol./Nº (vol./Nº)	página (page)				
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Outros resultados da Bolsa / Other Results of the Fellowship

Indique o calendário para potencial exploração (i.e. conseguido, expectável dentro de 3 anos, expectável dentro de 10 anos, não expectável em 10 anos) e inclua números das patentes, datas, nomes e endereços das empresas, etc., de forma apropriada, nas colunas “detalhes” e “referência” / Please indicate the timescale for potential exploitation (e.g. achieved, expected within 3 years, expected within 10 years, none foreseeable in 10 years) and include patent nos., dates, company names and addresses etc. as appropriate, in the ‘details’ and ‘reference’ columns.

	DETALHES (DETAILS)	REFERÊNCIA / REFERENCE	CALENDAR. / TIMESCALE
Licenças ou Patentes/ Licences or Patents			
Empresa de Spin Off/ Spin Off Company			
Consultadoria Direta/ Direct Consultancy			
Cursos de Formação Industrial/ Industrial Training Courses			
Compreensão Pública de Ciência e Engenharia/ Public Understanding of Science and Engineering			
Outro (especifique) / Other (please specify)			



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**Contribuições Relacionadas Concedidas/Pendentes
(Related Support Awarded / Pending)**

Indique o nível de apoio à investigação que derivou principalmente como resultado da Bolsa./ Please indicate the level of research support that has arisen principally as a result of the Fellowship.

FONTE DE FINANCIAMENTO (FUNDING SOURCE)	DETALHES (DETAILS)	SUORTE (€) SUPPORT (€)
Universidade de Évora (desde o início da bolsa) Évora University (from start of Fellowship)		
Outro Organismo Nacional de Investigação /Other National Research Organization		
Outro Organismo Governamental Português / Other Portuguese Government Council		
Empresa / Industrial		
Outra (Other)		
Comissão Europeia / European Commission		
Pendente (Pending)		

Assinaturas (Signatures):

Bolseiro (Fellow)
Data (Date):



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ANNEX III

**MODEL OF THE FINAL EVALUATION REPORT ON THE ACTIVITY OF THE SCIENTIFIC
RESEARCH FELLOW TO BE DRAWN UP BY THE SCIENTIFIC SUPERVISOR**

1. Scientific supervisor of the scholarship:
2. Identification of the grant:
3. Project name:
4. Host organisation:
5. Fellow:

5.1. Critical analysis of the activities and work carried out by the grant holder.

[A brief description of the activities carried out by the grant holder, in accordance with the announcement and the activity plan, and a critical appraisal of the objectives and results achieved by the grant holder].

5.2. Final assessment of the work carried out by the grant holder.

[Reasoned overall appraisal of the work carried out by the grant holder, with a final positive or negative balance, addressing their performance, effort and dedication]

Évora, ____ of ____ 20__

The Scientific Supervisor of the Scholarship, ____ (full name)