English version at the end of this document

Ano Letivo	2023-24
Unidade Curricular	ARQUEOGENÉTICA
Cursos	ARQUEOLOGIA (3.º Ciclo) (*) (*) Curso onde a unidade curricular é opcional
Unidade Orgânica	Faculdade de Ciências Humanas e Sociais
Código da Unidade Curricular	16731042
Área Científica	ARQUEOLOGIA
Sigla	
Código CNAEF (3 dígitos)	656
Contributo para os Objetivos de Desenvolvimento Sustentável - ODS (Indicar até 3 objetivos)	2, 3, 5,
Línguas de Aprendizagem	English / Inglês

Modalidade de ensino

Theoretical with three computational practical lectures. Seminars and a workshop will be organised on topics chosen by the students.

Docente Responsável Hugo Rafael Cardoso Oliveira

DOCENTE	TIPO DE AULA	TURMAS	TOTAL HORAS DE CONTACTO (*)
Hugo Rafael Cardoso Oliveira	OT; S	S1; OT1	20S; 2OT
Maria João Fernandes Martins	OT; S	;S1; OT1	19S; 3OT

* Para turmas lecionadas conjuntamente, apenas é contabilizada a carga horária de uma delas.

ANO	PERÍODO DE FUNCIONAMENTO*	HORAS DE CONTACTO	HORAS TOTAIS DE TRABALHO	ECTS
1º	S2	39S; 5OT	280	10

* A-Anual;S-Semestral;Q-Quadrimestral;T-Trimestral

Precedências

Sem precedências

Conhecimentos Prévios recomendados

Archaeological theory; Basic computational skills; Middle/High School level knowledge of biology and chemistry.

Objetivos de aprendizagem (conhecimentos, aptidões e competências)

1) To understand genomics data as a proxy to answer archaeological questions.

2) To critically evaluate the use of genomics data in archaeology publications.

3) To learn how to include ancient and modern DNA data on research projects.

Conteúdos programáticos

1. Archaeology and Genetics
2. How does DNA work
3. Genetic markers
4. Human genetics
5. Methods used in Archaeogenetics
6. Ethics in Archaeogenetics
7. Applications to archaeological research
8. Proteomics
9. Other Biomolecules
10.

Archaeogenetics practical

- Watching a PCR set-up.

- Watching a gel electrophoresis.

Bioinformatics practical

11. Retrieval of DNA sequences from databases
12. Alignment of DNA sequences

Metodologias de ensino (avaliação incluída)

1) Lectures

2) Three practical lectures

3) Seminars

4) Workshop: How to use DNA data in a PhD project.

Marks will be based on participation, the seminar and, if the students opt for it, a writen exam.

Bibliografia principal

Brown T & Brown K. 2011. *Biomolecular Archaeology: an introduction.* Wiley-Blackwell.

Reich D. 2018. *Who We Are and How We Got Here: ancient DNA and the new science of the human past.* Oxford University Press.

Archibal JM. 2018. *Genomics: a very short introduction.* Oxford University Press.

Jobling M, Hollox E, Kivisild T, Tyler-Smith C. 2013. *Human Evolutionary Genetics,* 2 nd edition. Garland Science.

Bardill J, Bader AC, Nanibaa' AG, Bolnick DA, Raff JA, Walker A, Malhi RS (2018). Advancing the ethics of paleogenomics. Science, 360(6387), 384-385.

Academic Year	2023-24
Course unit	ARCHAEOGENETICS
Courses	ARCHAEOLOGY (3rd cycle) (*) Common Branch (*) Optional course unit for this course
Faculty / School	FACULTY OF HUMAN AND SOCIAL SCIENCES
Main Scientific Area	ARQUEOLOGIA
Acronym	
CNAEF code (3 digits)	646
Contribution to Sustainable Development Goals - SGD (Designate up to 3 objectives)	2, 3, 5
Language of instruction	English / Inglês
Teaching/Learning modality	Theoretical with three computational practical lectures. Seminars and a workshop will be organised on topics chosen by the students.

Coordinating teacher Hugo Rafael Cardoso Oliveira

Teaching staff	Type	Classes	Hours (*)
Hugo Rafael Cardoso Oliveira	OT; S	S1; OT1	20S; 2OT
Maria João Fernandes Martins	OT; S	;S1; OT1	19S; 3OT

* For classes taught jointly, it is only accounted the workload of one.

Contact hours

T	TP	PL	TC	S	E	OT	O	Total
0	0	0	0	39	0	5	0	280

T - Theoretical; TP - Theoretical and practical ; PL - Practical and laboratorial; TC - Field Work; S - Seminar; E - Training; OT - Tutorial; O - Other

Pre-requisites

no pre-requisites

Prior knowledge and skills

Archaeological theory; Basic computational skills; Middle/High School level knowledge of biology and chemistry.

The students intended learning outcomes (knowledge, skills and competences)

1) To understand genomics data as a proxy to answer archaeological questions.

2) To critically evaluate the use of genomics data in archaeology publications.

3) To learn how to include ancient and modern DNA data on research projects.

Syllabus

1. Archaeology and Genetics
2. How does DNA work
3. Genetic markers
4. Human genetics
5. Methods used in Archaeogenetics
6. Ethics in Archaeogenetics
7. Applications to archaeological research
8. Proteomics
9. Other Biomolecules
10.

Archaeogenetics practical

- Watching a PCR set-up.

- Watching a gel electrophoresis.

Bioinformatics practical

11. Retrieval of DNA sequences from databases
12. Alignment of DNA sequences

Teaching methodologies (including evaluation)

1) Lectures

2) Three practical lectures

3) Seminars

4) Workshop: How to use DNA data in a PhD project.

Marks will be based on participation, the seminar and, if the students opt for it, a writen exam.

Main Bibliography

Brown T & Brown K. 2011. *Biomolecular Archaeology: an introduction.* Wiley-Blackwell.

Reich D. 2018. *Who We Are and How We Got Here: ancient DNA and the new science of the human past.* Oxford University Press.

Archibal JM. 2018. *Genomics: a very short introduction.* Oxford University Press.

Jobling M, Hollox E, Kivisild T, Tyler-Smith C. 2013. *Human Evolutionary Genetics,* 2 nd edition. Garland Science.

Bardill J, Bader AC, Nanibaa' AG, Bolnick DA, Raff JA, Walker A, Malhi RS (2018). Advancing the ethics of paleogenomics. Science, 360(6387), 384-385.