

<b>Updated On</b>	2024/02/07																																								
<b>Curricular Year / Period</b>	2023/24 / S1																																								
<b>Course</b>	Agronomy																																								
<b>Curricular Unit</b>	Meteorology and Climatology																																								
<b>Language(s) of Instruction</b>	Português																																								
<b>ECTS/tempo de trabalho (horas)</b>	<table border="1"> <thead> <tr> <th rowspan="2">ECTS</th> <th rowspan="2">Total</th> <th colspan="9">Horas de contacto semestral</th> </tr> <tr> <th>T</th> <th>TP</th> <th>PL</th> <th>S</th> <th>TC</th> <th>E</th> <th>O</th> <th>OT</th> <th>EC</th> </tr> </thead> <tbody> <tr> <td rowspan="2">5</td> <td rowspan="2">160</td> <td>32</td> <td>16</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>T - Theoretical; TP - Theoretical and practical; LP - Laboratory Practice; S - Seminar; TG - Tutorial guidance; FW - Fieldwork; T - Training; ; EC - Clinical teaching; O* - Other hours typified as Clinical Training under the Directive 77/453/EEC of June 27, adapted by Directive 2005/36/EC.</p>	ECTS	Total	Horas de contacto semestral									T	TP	PL	S	TC	E	O	OT	EC	5	160	32	16	0	0	0	0	0	0	0									
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<b>Teacher in charge (GDPR consent)</b> <small>[complete name, email]</small>	Francisco Luís Mondragão Rodrigues / fmondragao@ippportalegre.pt																																								
<b>Prerequisites</b> <small>[Curricular Units that must precede and specific entry competences]</small>	There is not																																								
<b>Learning outcomes</b> <small>[Description of the overall and specific objectives] [Knowledge, skills and competences to be developed by students]</small>	Know the structure and composition of the atmosphere. Identify the main meteorological instruments. Understand the operation of the general circulation of the atmosphere. Know the sources of weather information available. Able to analyze a synoptic chart and be able to make a weather forecast. Know the main meteorological / climatic elements and know their influence on the main agricultural activities. Understand the concept of evapotranspiration and know how to use the results of water balance calculation in irrigation management. To be able to classify the climate of a region by assessing its suitability for agriculture. Understand the implications of the irregular Mediterranean climate on agricultural activities and know the steps to be taken to mitigate its impact. Know and apply the main methods of study and climatological analysis. Understand the general implications of climate change on agricultural production.																																								
<b>Sustainable Development Goals</b>																																									
<b>Syllabus</b>	1. METEOROLOGY. 1.1 Definitions and general concepts. 1.2 - The atmosphere. 1.3 - Meteorological stations and meteorological instruments. 1.4 - General circulation of the atmosphere. 1.5 - Synoptic meteorology and weather forecast. 1.6 - The role of radiation in the atmosphere. 2 - CLIMATOLOGY. 2.1 - Introduction. 2.2 - Elements of the climate. 2.3 - Climate classifications. 2.4 - The Mediterranean climate. 2.5 The climate of Portugal. 2.6 Climatic characterization of a region for the implantation of a culture. 2.7 - Climate change and its impact on agriculture.																																								
<b>Teaching methodologies (including assessment)</b> <small>[Specify the types of assessment and the weights and evaluation criteria]</small>	<p><b>1 - Teaching methodologies</b></p> <p>Theoretical-practical classes, with theoretical exposition and practical exercises of application and handling of meteorological instruments. Study visit to illustrate the subject of meteorological stations and meteorological instruments. The different evaluation elements have the following weight: Report Report on the study visit to the weather parks (10% of the final grade); Group work Climatic characterization of a locality, with oral presentation (30% of the final grade); Two written assessments (30% + 30% of the final grade) or Final exam (60% of the final grade). The formula for obtaining the final grade only applies when the student has a positive grade in the written evaluations.</p> <p><b>2 - Period assessment</b></p> <p>The different evaluation elements have the following weight: (a) Report = Report on the study visit to the weather parks (10% of the final grade);</p>																																								

	<p>(b) Group work = Climatic characterization of a locality, with oral presentation (30% of the final grade); (c) Written assessment = Two written assessments (30% + 30% of the final grade) or Final exam (60% of the final grade).</p> <p>The formula for obtaining the final grade is only applied when the student has a positive grade (&gt; 9.5 points) in both written assessments.</p> <p><b>3 - Examination assesement</b></p> <p>The different evaluation elements have the following weight: (a) Report = Report on the study visit to the weather parks (10% of the final grade); (b) Group work = Climatic characterization of a locality, with oral presentation (30% of the final grade); (c) Final written exam (60% of the final grade, in two parts 30% + 30%).</p> <p>The formula for obtaining the final grade is only applied when the student has a positive grade (&gt; 9.5 points) in both parts of the written exam.</p>
<p><b>Bibliography</b></p>	<p><b>1 - Main Bibliography</b></p> <p>BLESSIG, A.M. (1995). Guia completa para entender la meteorologia. Editorial de Vecchi. Barcelona</p> <p>CASTILLO, F.E.; SENTIS, F. C. (2004). Agrometeorologia. Ediciones Mundi-Prensa. Madrid</p> <p>EUVERTE, G. (1967). Les climats et lagriculture. Presses universitaires de France. Paris</p> <p>GARCIA, F.F. (1996). Manual de Climatologia Aplicada. Editorial Sintesis. Madrid</p> <p>LOUREIRO, J.M. (1983). Manual de instrumentos hidrometeorológicos. Direcção Geral dos Recursos e Aproveitamentos Hidráulicos. Lisboa</p> <p>MORENO, P. (1996). El frio invernal, factor limitante para el cultivo frutal. Ediciones A. Madrid Vivente. madrid</p> <p>MOTA, F.S. (1981). Meteorologia Agrícola. Livaria Nobel, S.A. São Paulo</p> <p>SANTOS, F.D.; MIRANDA, P. (Eds.) (2006). Alterações climáticas em Portugal Cenários, impactos e medidas de adaptação. Gradiva. Lisboa</p> <p>VIDE, J.M. (2003). El tiempo y el clima. Rules Editorial, S.L. Barcelona</p> <p>YAGÜE, J.M. (1989). Iniciación a la meteorologia agrícola. MAPA e Ediciones Mundi-Prensa. Madrid</p> <p><b>2 - Complementary Bibliography</b></p> <p>AL GORE (2007). Uma verdade inconveniente. Esfera do caos. Lisboa</p> <p>FEIO, M. (1991). Clima e Agricultura. Ministério da Agricultura, Pescas e Alimentação. Lisboa</p> <p>KOEPPE, C.E.; DE LONG, G.C. (1958). Weather and climate. McGraw-Hill Book Company, Inc. New York</p> <p>LYNAS, M. (2007). Seis graus. O nosso futuro num planeta em aquecimento. Civilização Editora. Porto</p> <p>MAVI, H.S.; TUPER, G.J. (2004). Agrometeorology Principles and aplications of climates studies in agriculture. Food Product Press. New York</p> <p>RETALLACK, B.J. (1979). Meteorologia. Vol II do Compêndio para a formação profissional de pessoal meteorológico da classe IV. INMG. Lisboa</p> <p>RIBEIRO, O. (1986). Portugal. O mediterrâneo e o Atlântico. Livraria Sá da Costa Editora. Lisboa</p> <p>VIDE, J.M. (1991). Fundamentos de climatologia analítica. Editorial Sintesis. Madrid</p>
<p><b>Special Situations</b> [Students with special status]</p>	<p><b>1 - Period assessment - Students with special status</b></p> <p>The different evaluation elements have the following weight: (a) Report = Report on the study visit to the weather parks (10% of the final grade);</p>

(b) Group work = Climatic characterization of a locality, with oral presentation (30% of the final grade);  
(c) Written assessment = Two written assessments (30% + 30% of the final grade) or Final exam (60% of the final grade).

The formula for obtaining the final grade is only applied when the student has a positive grade (> 9.5 points) in both written assessments.

## **2 - Examination assesement - Students with special status**

The different evaluation elements have the following weight:

- (a) Report = Report on the study visit to the weather parks (10% of the final grade);
- (b) Group work = Climatic characterization of a locality, with oral presentation (30% of the final grade);
- (c) Final written exam (60% of the final grade, in two parts 30% + 30%).

The formula for obtaining the final grade is only applied when the student has a positive grade (> 9.5 points) in both parts of the written exam.