

<b>Program</b>	13AD – Master’s Degree in Forest Engineering
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<b>Course number and name</b>	
<b>Number</b>	
<b>Name</b>	Scientific Research and Communication
<b>Semester</b>	S2 [(February-June)]

<b>Credits and contact hours</b>	
<b>ECTS Credits</b>	3
<b>Contact hours</b>	30

<b>Coordinator's name</b>	Ramón Perea García-Calvo (ramon.perea@upm.es)
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<b>Specific course information</b>
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**Description of course content**

This course aims to give a first taste of scientific understanding by enhancing the curiosity and creativeness of students through project-based learning. Students will learn how to select interesting and promising scientific questions to further develop research hypotheses and predictions that will increase their chance of success in applying for grants, proposals or publishing scientific articles. In addition, students will work on their own experimental design and learn how to collect data in a scientifically-controlled manner in the field and in the lab. Importantly, great part of the course will be devoted to enhancing communication and networking skills by producing attractive figures, titles, posters and presentations for the general audience, and by creating and using websites, blogs and other social media platforms.

**List of topics to be covered**

- 1- Scientific research
  - 1.1 Is this science or not? The scientific method
  - 1.2 Literature review and search engines
  - 1.3 How to choose a good question. Grants and proposals
  - 1.4 Establishing hypotheses and predictions
  - 1.5 Basics of experimental design
  - 1.6 Principles of data collection. Fieldwork
- 2- Scientific communication
  - 2.1 The scientific article. Attractive titles and figures.

2.2 Hook the audience. Oral and poster presentations.	
2.3 Popular science for general audience	
2.4 Professional networking and science in the social media	
<b>Prerequisites or co-requisites</b>	
None	
<b>Course category in the program</b>	
<input type="checkbox"/> <b>R (required)</b>	<input checked="" type="checkbox"/> <b>E (elective)</b> <i>(elective courses may not be offered every year)</i>

<b>Specific goals for the course</b>
<b>Specific outcomes of instruction</b>
<ul style="list-style-type: none"> <li>• Understand the principles of science</li> <li>• Promote scientific creativeness</li> <li>• Collect data in an organized and controlled manner</li> <li>• Enhance effective science-based communication (writing and oral) for proposals, grants and articles.</li> <li>• Improve communication and networking skills (webpages, blogs, social media)</li> <li>• Enhance and develop professional networking</li> </ul>

<b>Bibliography and supplementary materials</b>
<p>Hofmann, A. H. (2014). Scientific writing and communication: papers, proposals, and presentations. Oxford Univ. Press.</p> <p>IUFRO. Interconnecting Science, Forest and People. <a href="https://www.iufro.org/science/task-forces/former-task-forces/communication/">https://www.iufro.org/science/task-forces/former-task-forces/communication/</a></p> <p>Martin, J. (2017). Science communication in 140 characters: use of twitter by STEM students. In: Proceedings of The Australian Conference on Science and Mathematics Education (formerly UniServe Science Conference) (p. 90).</p> <p>Ruxton, G., &amp; Colegrave, N. (2011). Experimental design for the life sciences. Oxford University Press.</p>

<b>Teaching methodology</b>			
<input checked="" type="checkbox"/> <b>lectures</b>	<input type="checkbox"/> <b>problem solving sessions</b>	<input checked="" type="checkbox"/> <b>collaborative actions</b>	<input type="checkbox"/> <b>laboratory sessions</b>
<b>Other:</b>	Project based learning.		



POLITÉCNICA



	Fieldwork.
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