

Actividades Transversales de Doctorado
Universidad Politécnica de Cartagena

Curso 2020/21

1. General course information			
Name	Introduction to Python for scientific research		
Level	Doctorate		
Teaching mode	Online		
University	Universidad Politécnica de Cartagena		
Language	English		
ECTS	1	hours / ECTS	30
		Total hours	30

2. Lecture data			
Lecturer in charge	Dr. Belén Gallego Elvira		
Department	Agricultural Engineering Department		
Knowledge area	Agro-forest		
Office location	2.8-B, ETSIA		
Telephone	968 17 7731	email	belen.gallego@upct.es
URL / WEB	https://personas.upct.es/en/profile/belen.gallego		
Office hours	Monday-Friday 9:30 am-14:00 pm and 16:00 pm -19:00 pm.		

3. Dates	
1 ^a edition-	Introduction to Python for scientific research
Date	November 2020 – February 2021
Hours	30
2 ^a edition	Introduction to Python for scientific research
Date	March 2021 – June 2021
Hours	30

4. Course objectives
<ul style="list-style-type: none"> • Learn <i>Python</i> 3 fundamentals • Discover the potential of <i>Python</i> 3 science libraries for data processing and visualization • Learn to gather input and manipulate input/output • Get familiar with advanced plotting options to produce publication-quality graphs • Get lots of practice working with <i>Python</i> code in <i>Jupyter</i> Notebook

5. Theory programme
<ol style="list-style-type: none"> 1. Introduction to <i>Python</i> 3 (basics) 2. Handy <i>Python</i> libraries for academics and researchers

6. Practical programme
<ol style="list-style-type: none"> 1. Getting started with <i>Python</i> and <i>Jupyter</i> 2. <i>Python</i> Basics. Writing and running code with <i>Jupyter</i> notebook 3. Introduction to <i>NumPy</i> 4. Introduction to <i>Matplotlib</i> 5. Data processing and visualization (with <i>NumPy</i> and <i>Matplotlib</i>) 6. <i>Pandas</i> for <i>Excel</i> users 7. Introduction to <i>Seaborn</i>

7. System of evaluation

The final grade will be based on two assignments:

- Data processing assignment
- Data visualization assignment

8. Hours distribution

Activity	Location	Hours
Theory programme	Virtual Classroom	2 hr
	Self-study	5 hr
Practical programme	Virtual Classroom	8 hr
	Self-study	25 hr
		30