

## Your Course: **Fundamentals of Python**

*Begin your journey in Python programming. Explore the capabilities of Python through hands-on exercises, enabling you to begin analyzing scientific data.*

<b>General Information:</b>	
Date	30 September - 4 October 2024 (Monday till Friday)
Teaching units	11 x 90 min
Location	Garda Lake/Italy
Price	695 € + VAT
Maximum Number of Participants	14
Accommodation	not included / self organised (with EIAPD support)
Your trainer	Dr. Alexander Britz



### **Course Description**

In the Fundamentals of Python course you will master the basics of Python programming. You'll get familiar with key development environments and essential Python syntax. Additionally, you will explore the capabilities of the established libraries NumPy and Matplotlib for scientific computing, data analysis and visualization. Through hands-on exercises, you will practice the newly acquired skills in writing your first Python code. Throughout the course of the week you'll gain confidence in developing code, solving problems, and further advancing your coding skills autonomously. To conclude the course, you will embark on your own Python project.


<b>Objectives of the mobility</b>	<ul style="list-style-type: none"> <li>● Understand the fundamentals of the Python programming language and its syntax</li> <li>● Learn about practical applications of Python</li> <li>● Implement your first Python scripts</li> <li>● Acquire a feeling of effectiveness in solving problems and advancing your skills on your own</li> <li>● Take the first steps towards analysis and visualization of your own data (if available)</li> </ul>
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Further information

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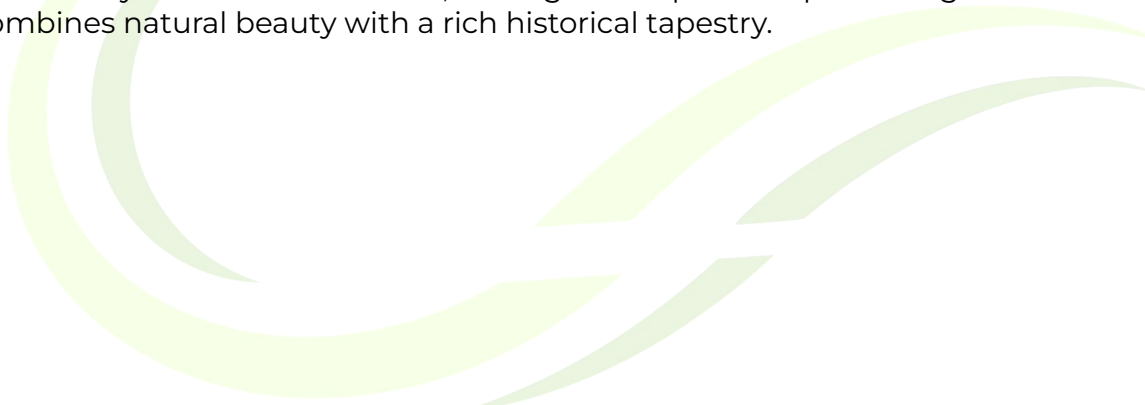
<p><b>Added value of the mobility</b> (in the context of the modernisation and internationalisation strategies of the institutions involved)</p>	<p>Participants will be ...</p> <ul style="list-style-type: none"> <li>• able to use Python and to use this as starting point for further development. Therefore they will have the knowledge to adapt to future needs according to the institutions development.</li> <li>• acting as multipliers and share their acquired knowledge in their institution.</li> </ul>
<p><b>Activities</b></p> 	<p>The course will be highly interactive and is split <b>50/50</b> into <b>lectures and exercises</b>.</p> <ul style="list-style-type: none"> <li>• Exercises: You will work in (small) groups on coding tasks and explore them in depth.</li> <li>• Peer exchange: You will meet, discuss and exchange with other young, aspiring Python programmers.</li> <li>• Lecture and presentation by instructor: Lecture scripts will be handed out to all participants.</li> </ul> <p>Additionally you will have the opportunity to ...</p> <ul style="list-style-type: none"> <li>• Experience Lake Garda and it's beautiful surroundings</li> <li>• Network and exchange with colleagues from other European universities. EIAPD will facilitate a session to identify possibilities for further cooperation among participants.</li> </ul>
<p><b>Learning outcome and impact</b></p>	<p>After the course you will ...</p> <ul style="list-style-type: none"> <li>• have an understanding of the real-world uses of Python in data analysis</li> <li>• be familiar with Python development tools like Jupyter Notebooks and Anaconda.</li> <li>• know how to create simple Python scripts</li> <li>• get a taste of handling data with Numpy</li> <li>• be able to make basic charts with Matplotlib</li> <li>• know how to exploit AI-based tools to advance your programming skills.</li> </ul>
<p><b>Target Group and Prerequisites</b></p>	<ul style="list-style-type: none"> <li>• Anyone interested in learning the basics of programming Python</li> <li>• Participants which want to learn the application of Python for data analysis in the future</li> <li>• You will bring your own laptop to work with</li> </ul>

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### **Your Destination: Northern Lake Garda, Italy (Riva del Garda/Arco)**

Garda Trentino, located at the northern tip of Lake Garda, with Riva del Garda, Arco and Torbole, offers an exceptional blend of breathtaking natural landscapes, vibrant cultural experiences, and a wide array of outdoor activities, making it a compelling destination for an Erasmus program. With the majestic mountains and the crystal-clear Lake Garda, the region is a picturesque setting that combines natural beauty with a rich historical tapestry.



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Monday 30 September	Tuesday 1 October	Wednesday 2 October	Thursday 3 October	Friday 4 October
09.00-12.15	09.00-12.15		09.00-12.15	09.00-12.15
<ul style="list-style-type: none"> <li>- Welcome &amp; Introduction</li> <li>- Introduction to Python and it's capabilities with example use cases</li> <li>- Getting started: Software installation, command line, Jupyter Notebooks, Spyder, Anaconda</li> </ul>	<ul style="list-style-type: none"> <li>- Python syntax (lecture and exercise) II: conditional statements, loops, functions</li> <li>- Data treatment with Numpy (lecture)</li> </ul>	Excursion	<ul style="list-style-type: none"> <li>- Reading and writing of files (lecture and exercise)</li> <li>- First steps of visualization with Matplotlib (lecture and exercise)</li> </ul>	<ul style="list-style-type: none"> <li>- Practice lab: start your own projects</li> <li>- Peer review and Trainer feedback to support and advance your own projects</li> </ul>
12.15-13.30	12.15-13.30		12.15-13.30	12.15-13.30
Lunch	Lunch		Lunch	Lunch & Departure
13.30-15.00	13.30-15.00		13.30-15.00	
<ul style="list-style-type: none"> <li>- Python syntax I (lecture and exercise): data types and variables</li> </ul>	<ul style="list-style-type: none"> <li>- Data treatment with Numpy (exercise)</li> </ul>	<i>Individual Learning</i>	<ul style="list-style-type: none"> <li>- BONUS: Coding with AI tools</li> </ul>	

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