



5 Courses

Python Basics

Python Functions, Files, and  
Dictionaries

Data Collection and Processing  
with Python

Python Classes and Inheritance

Python Project: pillow, tesseract,  
and opencv



07/10/2020

**Angel Antonio Vera Sánchez**

has successfully completed the online, non-credit Specialization

## Python 3 Programming

This specialization teaches the fundamentals of programming in Python 3. We will begin at the beginning, with variables, conditionals, and loops, and get to some intermediate material like keyword parameters, list comprehensions, lambda expressions, and class inheritance. You will have lots of opportunities to practice. You will also learn ways to reason about program execution, so that it is no longer mysterious and you are able to debug programs when they don't work. By the end of the specialization, you'll be writing programs that query Internet APIs for data and extract useful information from them. And you'll be able to learn to use new modules and APIs on your own by reading the documentation. That will give you a great launch toward being an independent Python programmer.

*Stephen Oney* *Paul Resnick*

Steve Oney  
Assistant Professor  
School of Information

Paul Resnick  
Michael D. Cohen  
Collegiate Professor  
School of Information

*Jaclyn Cohen*

Jaclyn Cohen  
Lecturer  
School of Information

*Christopher Brooks*

Christopher Brooks  
Research Assistant  
Professor  
School of Information

The online specialization named in this certificate may draw on material from courses taught on-campus, but the included courses are not equivalent to on-campus courses. Participation in this online specialization does not constitute enrollment at this university. This certificate does not confer a University grade, course credit or degree, and it does not verify the identity of the learner.

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06/20/2020

Angel Antonio Vera Sánchez

has successfully completed

Python Basics

an online non-credit course authorized by University of Michigan and offered through Coursera

Three handwritten signatures in black ink, stacked vertically. The first signature is 'Paul Resnick', the second is 'Stephen Oney', and the third is 'Jaclyn Cohen'.

Paul Resnick  
Stephen Oney  
Jaclyn Cohen

COURSE  
CERTIFICATE



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06/25/2020

Angel Antonio Vera Sánchez

has successfully completed

Python Functions, Files, and Dictionaries

an online non-credit course authorized by University of Michigan and offered through Coursera

*Paul Resnick  
Stephen Oney  
Jaclyn Cohen*

Paul Resnick  
Stephen Oney  
Jaclyn Cohen

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06/30/2020

Angel Antonio Vera Sánchez

has successfully completed

Data Collection and Processing with Python

an online non-credit course authorized by University of Michigan and offered through  
Coursera

A handwritten signature in black ink that reads 'Paul Resnick'.

Paul Resnick  
Michael D. Cohen Collegiate Professor  
School of Information

A handwritten signature in black ink that reads 'Jaclyn Cohen'.

Jaclyn Cohen  
Lecturer  
School of Information

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CERTIFICATE



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07/03/2020

# Angel Antonio Vera Sánchez

has successfully completed

## Python Classes and Inheritance

an online non-credit course authorized by University of Michigan and offered through Coursera

A handwritten signature in black ink that reads 'Stephen Oney'.

Steve Oney  
Assistant Professor  
School of Information

A handwritten signature in black ink that reads 'Paul Resnick'.

Paul Resnick  
Michael D. Cohen Collegiate Professor  
School of Information

### COURSE CERTIFICATE



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07/10/2020

Angel Antonio Vera Sánchez

has successfully completed

Python Project: pillow, tesseract, and opencv

an online non-credit course authorized by University of Michigan and offered through Coursera

A handwritten signature in black ink, appearing to read 'Chris Brooks'.

Christopher Brooks  
Research Assistant Professor  
School of Information

COURSE  
CERTIFICATE



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