

Python (programming language) 

## What are the major "must know," "should know," and "nice to know" features of programming in Python?

If programming in Python were to be broken down into categories of "must know," "should know," "nice to know," "fringe cases," and "useless."

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**Navin Kabra**, Python's my primary language for development for last 2 years.

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I'll assume that the basics don't need to be listed here (like dict usage, and list slicing, and duck typing). I'll focus on features of python that newbies (i.e. people migrating to python from other languages) typically miss, or learn late in life.

I'll just break it up into must know and nice to know because that makes more sense to me:

Must know features:

- List comprehensions and generators. Without them, you're just not using the language as intended
- import itertools
- Docstrings and Doctests
- Be familiar with the standard library - too much re-invention of the wheel exists in the world today. Don't add to that problem.
- The Style Guide for Python: <http://www.python.org/dev/peps/p...> - this is not really a language feature, but consistency, and readability are so important to python and an ingrained part of the culture, that you must read and implement a lot of what's in the style guide
- The Zen of Python: related to the previous topic. "import this" in a python interpreter and understand what each line means.
- Use of \*args and \*\*kwargs
- "get" method of dictionaries (and default value dictionaries).
- scipy/numpy/matplotlib if you're doing anything with data

Nice to know

- Generator expressions (and how to create those yourself). Combine with list comprehensions
- Decorators - to make your code concise and more readable. And learn to create decorators
- Understand python closures. A lot of complex code gets written by people who don't think of using an appropriate closure
- Metaclasses - you'll hopefully never have a project that needs metaclasses, but if you do, you'll be glad you learnt metaclasses
- The 'with' statement. Learn to use it, and create your own. Good for automatically cleaning up after yourself
- Properties. This is a really neat feature. Haven't really had to use it myself very much in real programming, though.
- Python ternary operator: "x if c else y"; makes code more readable if used sparingly
- New style formatting of strings.

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Things I am unsure about (I'm hoping others will tell me how important or not these features are):

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**Andrew Ledvina**, Bit pusher

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Navin's answer is quite good, I just want to add something he didn't really say/emphasize.

Generators and coroutines. They are cool as hell. David Beazley has some very good tutorial slides on using them effectively. If you find yourself in a situation where they come up, you will be very happy you learned how to use. Besides that, they will just make you really happy to write code.

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**Louie Dinh**, I like biology and computer science. That is all.

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Lambda functions. They are especially useful when you're trying to do interesting sort orders.

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