

Errata List for the book
“A Primer on Scientific Programming with Python
3rd edition
by H. P. Langtangen

Simple typos are not reported in the list below – only more serious errors that may lead to confusion.

1. Exercise 1.17, page 48: The hint may be misleading as `q` should be complex and will never be printed because the `sqrt` fails.
2. Exercise 3.2, page 120: The sample call `s(3)` should be `sum_1_div_k(3)`.
3. Exercise 3.8, page 122: The points in the Midpoint rule are wrong, they should be $a - \frac{1}{2}h + ih$, so the rule reads $h \sum_{i=1}^n f(a - \frac{1}{2}h + ih)$.
4. Exercise 3.13, page 124: The text “case where 1, 3, 5, ...” should read “case where $n = 1, 3, 5, 10, 30, 100$ ”.
5. Exercise 4.23, page 184: Very large (and very small) values of the random numbers cause problems in some of the mathematical operations. Try out `A=1` and `B=2` as well as `A=1` and `B=100`. The exercise also asks to import three expressions from 4.21, but there are only two (this point is just dropped in a new version of the exercise).
6. Exercise 5.16, page 247: The sentence “Compute $n+1$ interpolation points taken from the curve $f(x) = |x|$ for $x \in [-2, 2]$: $x_k = -2 + 4k/n$ and $y_k = |x_k|$, $k = 0, 1, \dots, n$ ” does not make sense because `graph` takes a function `f` as argument and not the interpolation points (`xp`, `yp`). The sentence should be removed and the next should read “Call the `graph` function from Exercise 5.15 with $f(x) = |x|$, $x \in [-2, 2]$, for $n = 2, 4, 6, 10$.”
7. Page 306: The file `rw_csv_numpy.py` has several errors. A working version can be downloaded from <http://hplgit.github.com/scipro-primer/src/files>.
8. Exercise 6.4, page 331: The last sentence “Make three separate plots of the Name of the program...” does not make sense. Just ignore the “Make three separate plots”.
9. Exercise 7.8, page 397:
 - (a) “We want to construct a class `Lagrange`” should be “We want to construct a class `LagrangeInterpolation`”.
 - (b) The `print` statements in the code snippets lack a percentage sign between the string and the tuple of variables.

- (c) It is not sensible to reuse the `graph` function from the `Lagrange_poly2` module since `graph` works with an explicit function `f` and not only the interpolation points `xp` and `yp`, which is what the `LagrangeInterpolation` class knows about. This means that the `plot` method must be written particularly for this class.
10. Page 572, Equation (A.35): an equality sign is missing after the term $\tilde{f}(x)$.
 11. Exercise E.19: The code snippet lacks the `T` parameter in the class `Problem` constructor: `Problem(h_0, r, R, float(dt), T)`.
 12. Page 720, Exercise E.36: The code snippet under `Example:` has two errors: 1) the call to `Problem` must also have parameters `R0` and `T` (say `R0=0, T=60`), and 2) the call to `ODESolver.ForwardEuler` should have just `problem`, not `problem.f`, as argument. The `Solver` class has also an error in the `solve` method: the call `method(problem)` must be `method(self.problem)`.
 13. Page 725, Exercise E.42: The function $\omega(t)$ in (E.83) is meant to be a Gaussian function so there must be a minus sign in front of the factor $\frac{1}{2}$.