

Computer Science and `atlas-preamble`

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1 Introduction

To use computer science notation and packages in your document, use `atlas-preamble`, use the `compsci` option:

```
\usepackage[compsci]{atlas-preamble}
```

You then have the following benefits:

2 Theoretical notation macros

The following often-used symbols in theoretical computer science get abbreviated macros:

<code>\Oh{}</code>	<code>\oh{}</code>	<code>\Th{}</code>	<code>\Om{}</code>	<code>\om{}</code>
$\mathcal{O}\left(\frac{n^2}{m}\right)$	$\mathcal{o}\left(\frac{n^2}{m}\right)$	$\Theta\left(\frac{n^2}{m}\right)$	$\Omega\left(\frac{n^2}{m}\right)$	$\omega\left(\frac{n^2}{m}\right)$

3 Pseudocode

For the example algorithm using `algpseudocode` from the `algorithmicx` documentation, see Algorithm 1.

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Algorithm 1 The Bellman-Kalaba algorithm

Input: Some input

Output: Some output

```
1: procedure BELLMANKALABA( $G, u, l, p$ )
2:   repeat  $t$  times
3:     This will be repeated  $t$  times
4:   end
5:   ▷ This is one line only for a comment.
6:   for all  $v \in V(G)$  do
7:      $l(v) \leftarrow \infty$ 
8:   end for
9:    $l(u) \leftarrow 0$ 
10:  repeat
11:    for  $i \leftarrow 1, n$  do
12:       $min \leftarrow l(v_i)$ 
13:      for  $j \leftarrow 1, n$  do
14:        if  $min > e(v_i, v_j) + l(v_j)$  then
15:           $min \leftarrow e(v_i, v_j) + l(v_j)$ 
16:           $p(i) \leftarrow v_j$ 
17:        end if
18:      end for
19:       $l'(i) \leftarrow min$ 
20:    end for
21:     $changed \leftarrow l \neq l'$ 
22:     $l \leftarrow l'$ 
23:  until  $\neg changed$ 
24: end procedure
```

▷ Here we have extra space

```
25: procedure FINDPATHBK( $v, u, p$ )
26:   if  $v = u$  then
27:     Write  $v$ 
28:   else
29:      $w \leftarrow v$ 
30:     while  $w \neq u$  do
31:       Write  $w$ 
32:        $w \leftarrow p(w)$ 
33:     end while
34:   end if
35: end procedure
```
