

\$hell variables

# echo

Print strings to screen

```
echo hello, world
```

Print values of variables

```
echo $HOME
```

# Frequently used shell variables

- \$USERNAME
- \$HOME
- \$HOSTNAME
- \$PWD
- \$PATH

`printenv, env, set`

# Special shell variables

`$0` : name of the shell

`$$` : process ID of the shell

`$?` : return code of previously run program

`$-` : flags set in the bash shell

# Process control

- Use of `&` to run a job in the background
- `fg`
- `coproc`
- `jobs`
- `top`
- `kill`

`echo $$`

# Program exit codes

0 : success

1 : failure

2 : misuse

126 : command cannot be executed

127 : command not found

130 : processes killed using control+C

137 : processes killed using kill -9 <pid>

echo \$?

# Flags set in bash

- **h** : locate and hash commands
- **B** : brace expansion enabled
- **i** : interactive mode
- **m** : job control enabled
- **H** : ! style history substitution enabled
- **s** : commands are read from stdin
- **c** : commands are read from arguments

echo \$-