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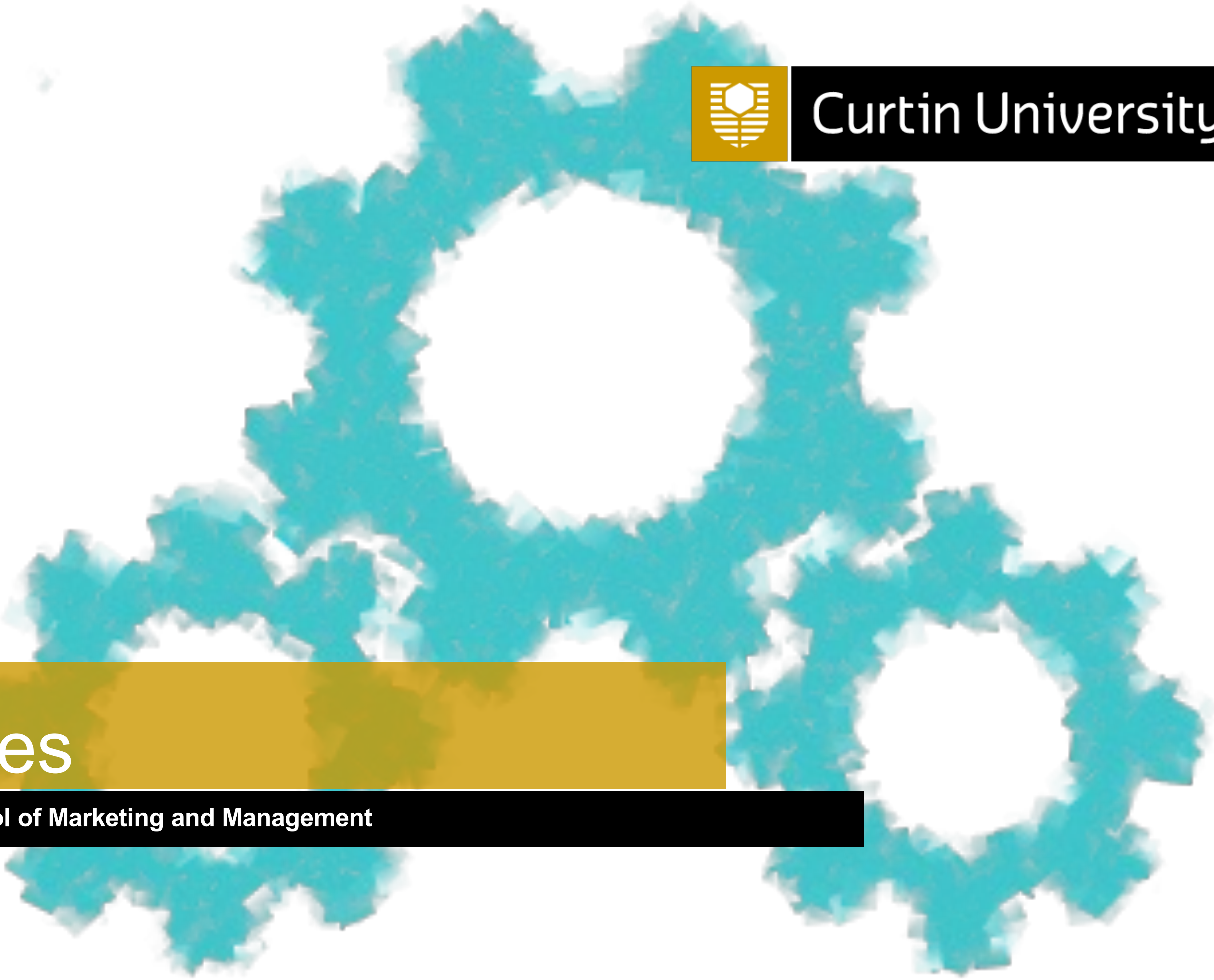

Modules

ISYS2001, School of Marketing and Management

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I acknowledge the traditional custodians of the land on which I work and live, and recognise their continuing connection to land, water and community. I pay respect to elders past, present and emerging.

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Today

- Modules
- Packages
- Modular Design

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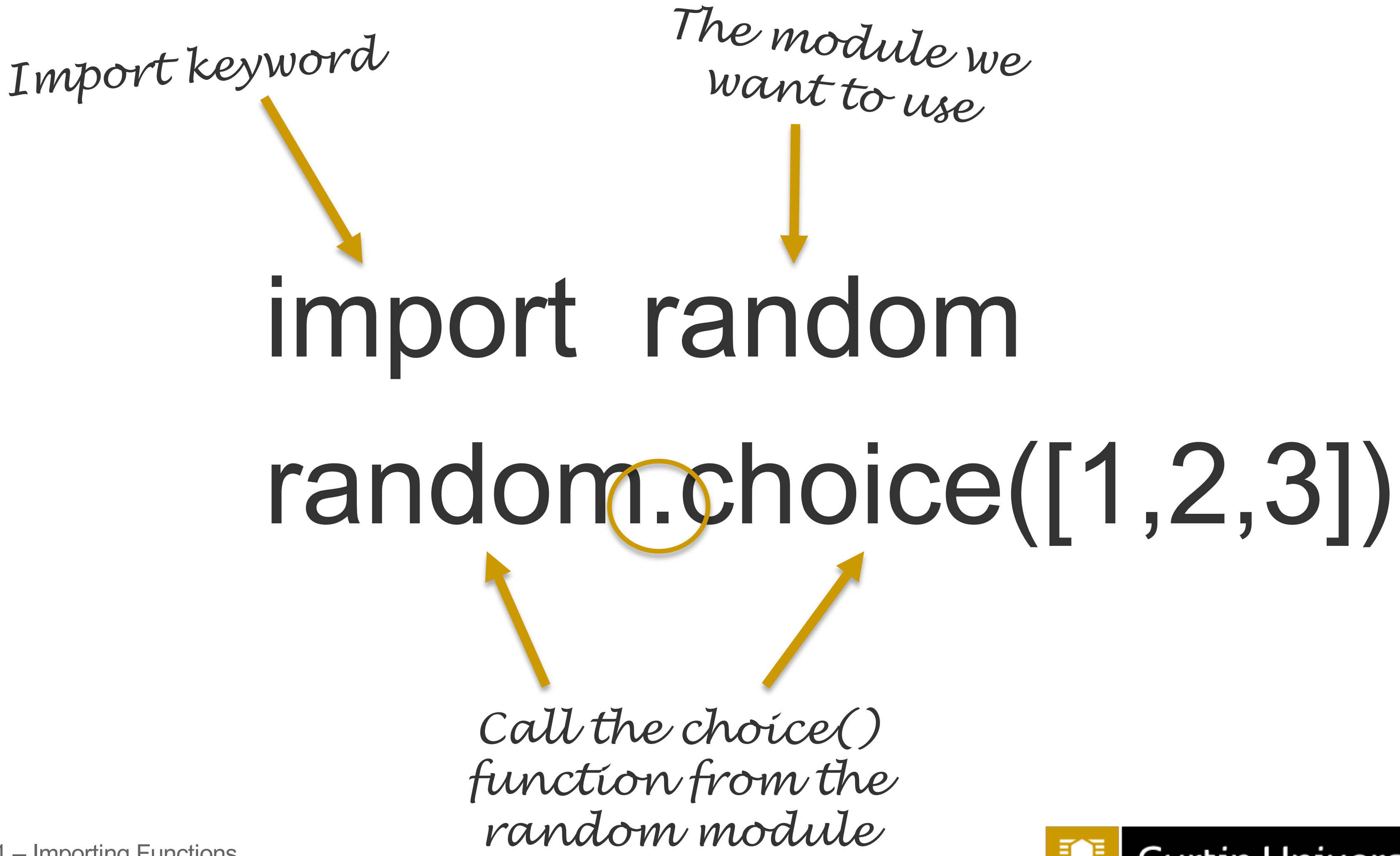
Recall Modules



```
import  random

random.choice([1,2,3])
```

Import keyword
The module we want to use
Call the choice() function from the random module

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Recall Convenience

Import keyword

Module

'as' keyword followed by an alias

```
import matplotlib.pyplot as plt
plt.plot([1,3,5,7,9], [1,9,25,49.81])
```

Alias, followed b dot, followed by function

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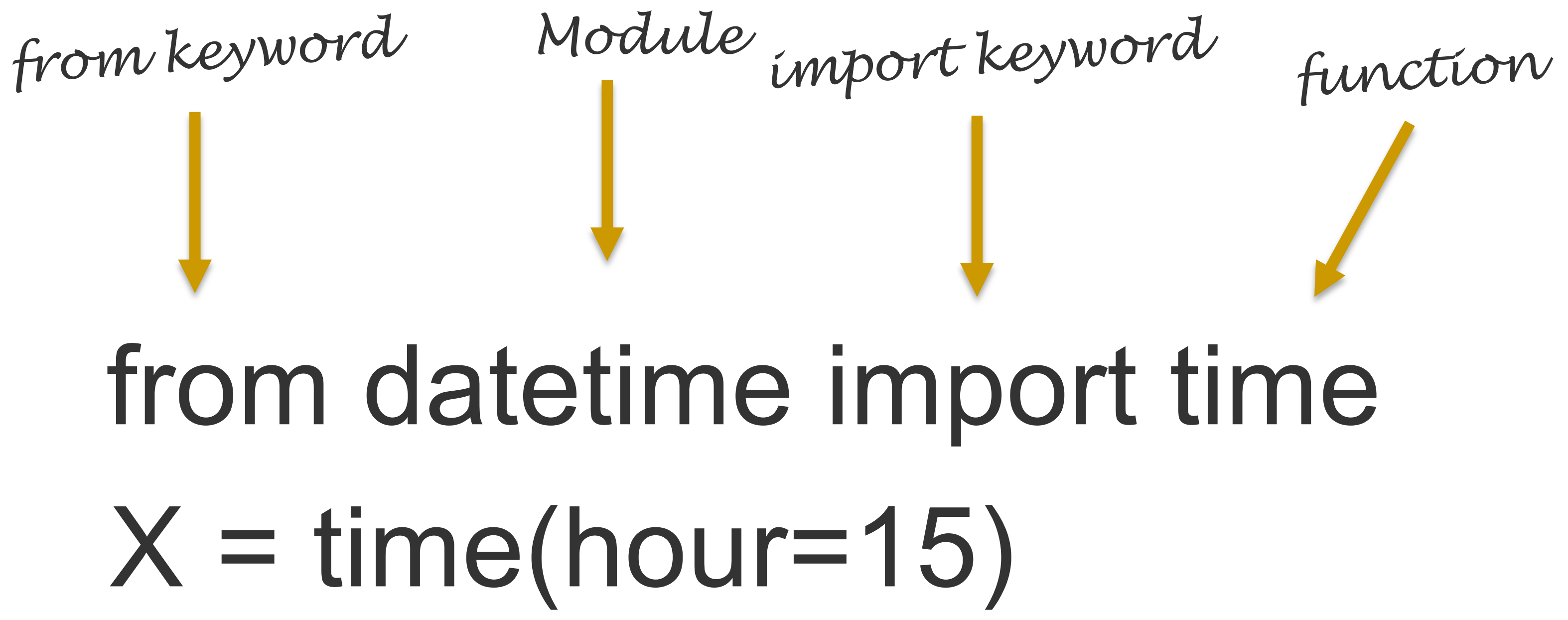
Specific Import



```
from datetime import time
X = time(hour=15)
```

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Module

- A file containing Python code
- Typically functions, variables and classes
- Logically organise your code

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Creating a Module

- Define the function(s)
- Save to file
- Import file
- Python script
- For notebooks:

    import margo_loader

    import notebook

- *Sometimes:* %run

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Create the module (file: hello.py)

```
# Define a function
def greeting():
     print("Hello, World!")

#Define variable
Name = “Steve”
```

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Use Module

```
# Import the modules
import hello


# call the function
hello.greetting()


# Print variable
print(hello.name)
```

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Package

- Collection of Python files
- Directory structure
- __init__.py
- Bundled together uploaded to PyPi

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Modules and Packages

- Conceptually One Think
- Encapsulation (Hide internal workings)
- Provide Application Programmers Interface (API)
- Also called a library
- Must be in Python Path
- Name Space
- Code Reuse
- Distribution

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Appending Paths

```
import sys
sys.path.append(‘/user/steve/’)


import hello
…
```

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Modular design

- use to manages complexity
- break large problem into small problems
- small problems become functions
- group related functions into a module
- group related modules into a package

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