

Controlling algorithm flow:

if statements

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(Modified from Ethan Campbell and Katy Christensen's materials for UW's Ocean 215)

Elements of the Python `if` statement

Must be either a Boolean variable (with value `True` or `False`)

`if` *<CONDITION>*:

<ACTION>

<ACTION>

etc.

The colon is essential!

Actions that you want the code to do if the condition is true such as `print` statements, variable assignments, or calculations

Indent using a **`tab`** or **2 spaces** (on Google Colab)

Review of Boolean operators

Comparison	<code>==, !=, >, >=, <, <=</code>
Logical	<code>and, or, not</code>
Membership	<code>in, not in</code>
Identity	<code>is, is not</code>

Examples of if statements

```
1 x = 5
2
3 if x > 0:
4     print('x is positive!')
```

☞ x is positive!

Examples of if statements

```
1 x = -3
2
3 if x > 0:
4     print('x is positive!')
```



if/elif statements

```
if <CONDITION #1>:  
    <ACTION #1>
```

```
elif <CONDITION #2>:  
    <ACTION #2>
```

Note:
elif stands
for “else if”

if/elif statements

if *<CONDITION #1>:*

<ACTION #1>

elif *<CONDITION #2>:*

<ACTION #2>

elif *<CONDITION #3>:*

<ACTION #3>

if/elif/else statements

if *<CONDITION #1>*:

<ACTION #1>

elif *<CONDITION #2>*:

<ACTION #2>

elif *<CONDITION #3>*:

<ACTION #3>

else:

<ACTION #4>

if/elif/else statements

```
1 likelihood_precip = 80    # i.e. 80% chance of rain
2
3 if likelihood_precip > 50:
4     print('Ugh... I better wear a rain jacket.')
5 elif likelihood_precip < 20:
6     print("I'll be okay without a rain jacket.")
7 else:
8     print("I don't know what to do.")
```

☞ Ugh... I better wear a rain jacket.

if/elif/else statements

```
1 likelihood_precip = 5    # i.e. 5% chance of rain
2
3 if likelihood_precip > 50:
4     print('Ugh... I better wear a rain jacket.')
5 elif likelihood_precip < 20:
6     print("I'll be okay without a rain jacket.")
7 else:
8     print("I don't know what to do.")
```

☞ I'll be okay without a rain jacket.

if/elif/else statements

```
1 likelihood_precip = 30    # i.e. 30% chance of rain
2
3 if likelihood_precip > 50:
4     print('Ugh... I better wear a rain jacket.')
5 elif likelihood_precip < 20:
6     print("I'll be okay without a rain jacket.")
7 else:
8     print("I don't know what to do.")
```

☞ I don't know what to do.