

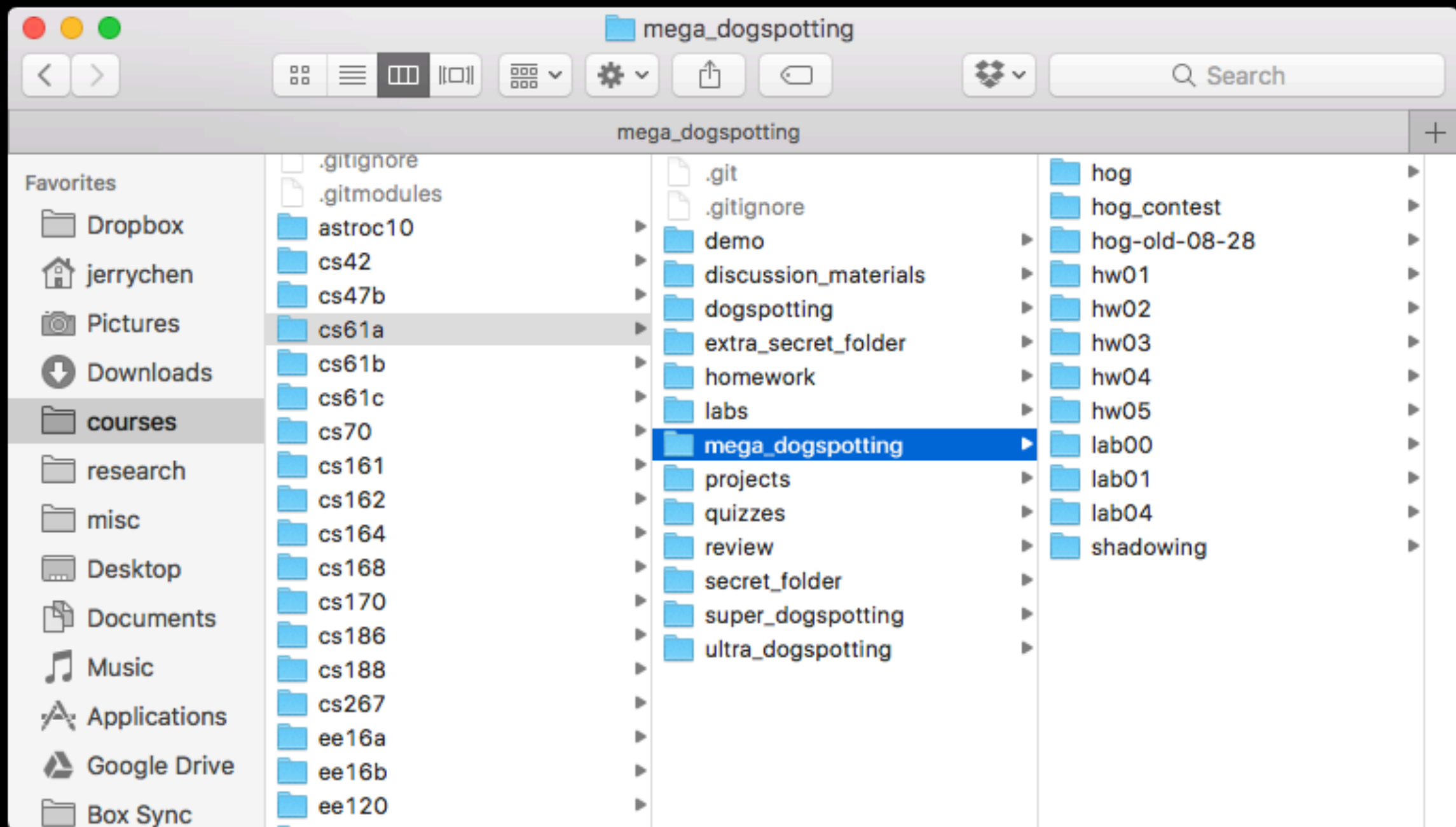
#3 Trees and Sequences

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Trees, as seen by
computer scientists



✓



WWPD, Lists

```
>>> a = [1, 5, 4, [2, 3], 3]
```

```
>>> print(a[0], a[-1])
```

```
1 3
```

```
>>> len(a)
```

```
5
```

```
>>> 2 in a
```

```
False
```

```
>>> 4 in a
```

```
True
```

```
>>> a[3][0]
```

```
2
```

WWPD, Slicing

```
>>> a = [3, 1, 4, 2, 5, 3]
```

```
>>> a[1::2]
```

```
[1, 2, 3]
```

```
>>> a[:]
```

```
[3, 1, 4, 2, 5, 3]
```

```
>>> a[4:2]
```

```
[]
```

```
>>> a[1:-2]
```

```
[1, 4, 2]
```

```
>>> a[::-1]
```

```
[3, 5, 2, 4, 1, 3]
```

List Comprehensions

- Return a new list of elements, using some rule

```
[<expr> for <var> in <sequence> if <filter_expr>]
```

WWPD, List Comprehensions

```
>>> [i + 1 for i in [1, 2, 3, 4, 5] if i % 2 == 0]
[3, 5]
>>> [i * i - i for i in [5, -1, 3, -1, 3] if i > 2]
[20, 6, 6]
>>> [[y * 2 for y in [x, x + 1]] for x in [1, 2, 3,
4]]
[[2, 4], [4, 6], [6, 8], [8, 10]]
```


Trees

An anatomical perspective

