# Time Series Analysis

AST5003F, 2018
Lecture #3

## this lecture

- Resampling data
- Folding a light curve
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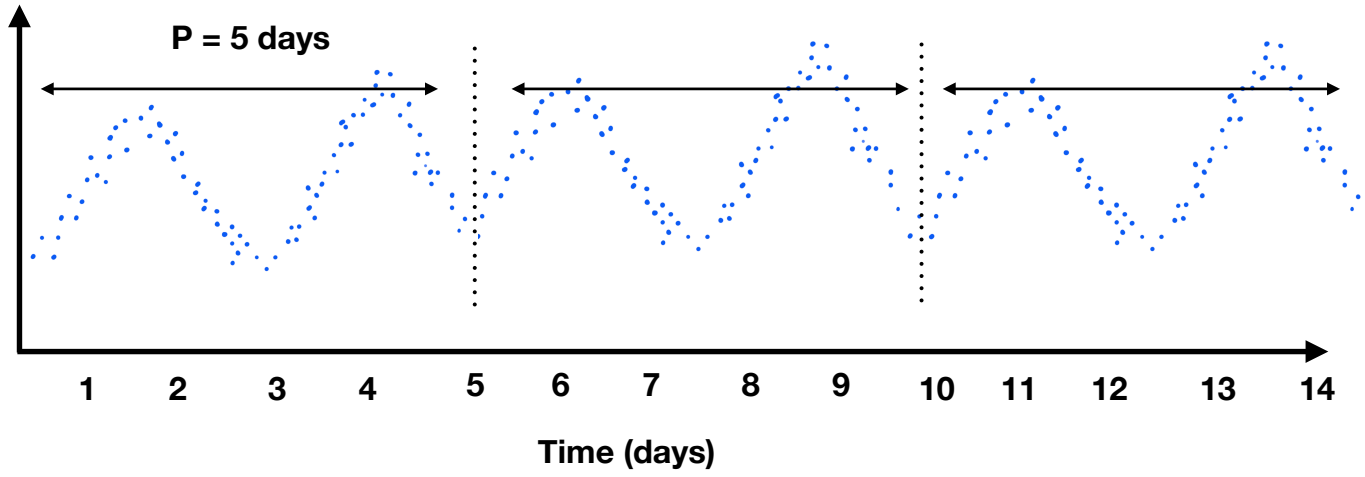
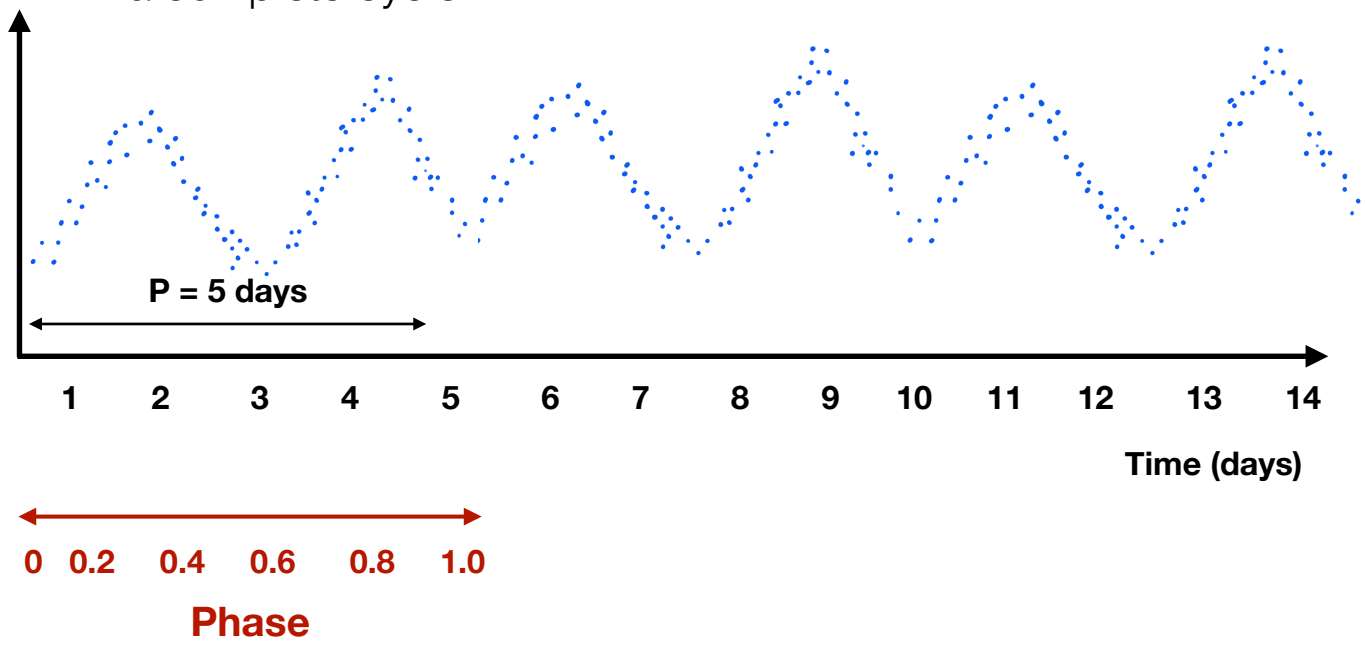
# Folding a light curve

A light curve showing periodic variability



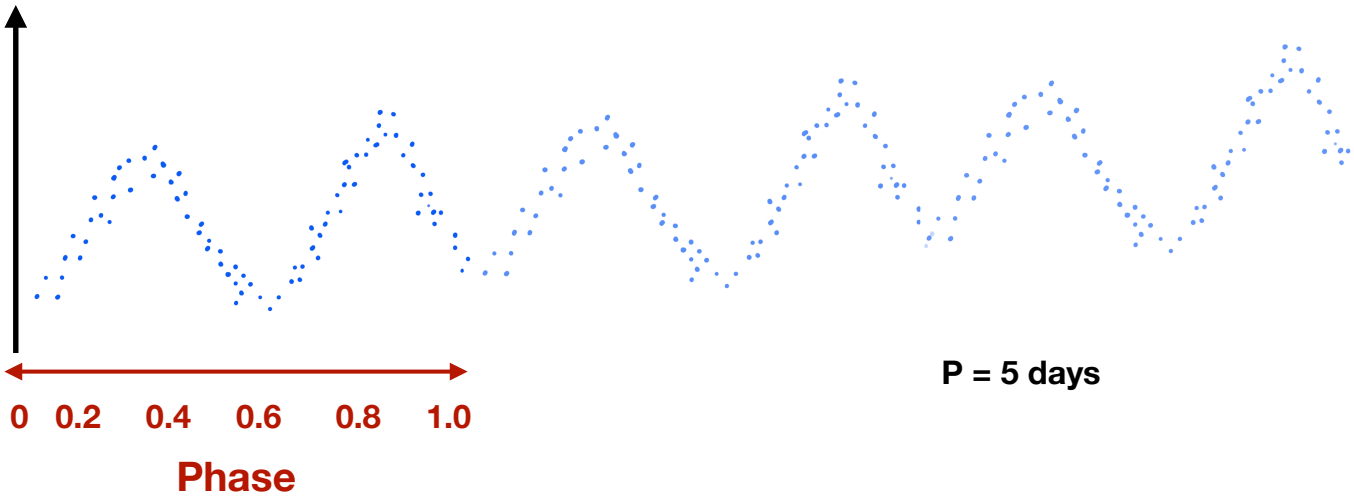

# Folding a light curve

Relabel X-axis to Phase, which extends from 0 to 1 over a a complete cycle



# Folding a light curve

Fold light curve onto phase axis




# Folding a light curve

How to do this in reality:

Array of timestamps: $t_0, t_1, t_2, t_3, \ldots$

We'd like to convert these into phases

$ph = (t - t_0)/P$ where $P$ is the period

Now plot *brightness* (y-variable) vs fractional part of *ph*.

# Useful Python functions for time

**AstroPy:Time**

https://docs.astropy.org/en/stable/time/index.html

**Numpy: datetime64**

**Julian Date**: (Useful for astronomical time series)

Number of days since 1 January 4713 BC