Quickstart

If you're in a hurry to model some awesome transits, you're on the right page. Here's an example of basic `batman` usage to calculate a model light curve with quadratic limb darkening. (For more detailed examples, check out the Tutorial.)

First, we import `batman` and a few of the usual packages:

```
import batman
import numpy as np
import matplotlib.pyplot as plt
```

Next we create a `TransitParams` object to store the physical parameters describing the transit:

```
params = batman.TransitParams()
params.t0 = 0.                       #time of inferior conjunction
params.per = 1.                      #orbital period
params.rp = 0.1                      #planet radius (in units of stellar radii)
params.a = 15.                       #semi-major axis (in units of stellar radii)
params.inc = 87.                     #orbital inclination (in degrees)
params.ecc = 0.                      #eccentricity
params.w = 90.                       #longitude of periastron (in degrees)
params.u = [0.1, 0.3]                #limb darkening coefficients [u1, u2]
params.limb_dark = "quadratic"       #limb darkening model
```

Note that for circular orbits, `batman` uses the convention `params.w = 90`. The units for `params.t0` and `params.per` can be anything as long as they are consistent.

We also need to specify the times at which we wish to calculate the model:

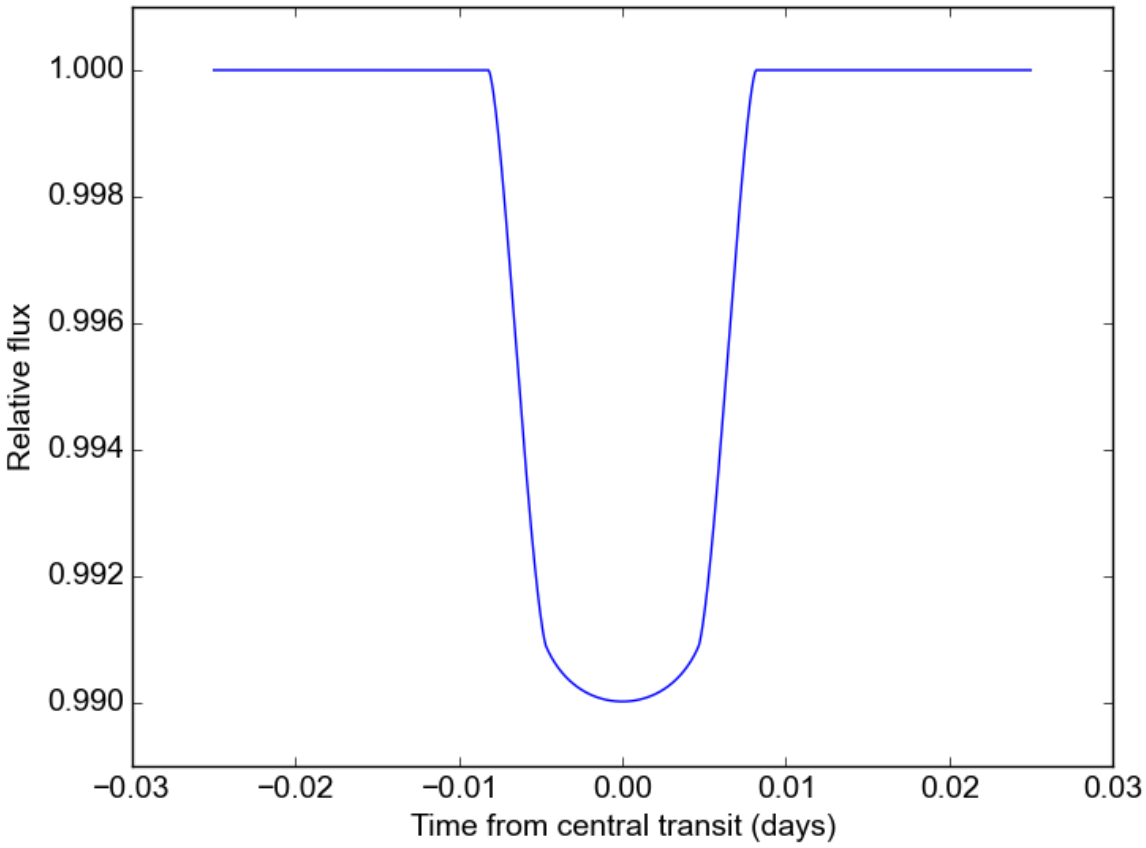
```
t = np.linspace(-0.05, 0.05, 100)
```

Using these parameters, we initialize the model and calculate a model light curve:

```
m = batman.TransitModel(params, t)    #initializes model
flux = m.light_curve(params)          #calculates light curve
```

Voilà! Here's a figure showing the light curves:

```
plt.plot(t, flux)
plt.xlabel("Time from central transit")
plt.ylabel("Relative flux")
plt.show()
```



This code is available in full at https://github.com/lkreidberg/batman/tree/master/docs/quickstart.py.