Financial Engineering Lab (MA374)

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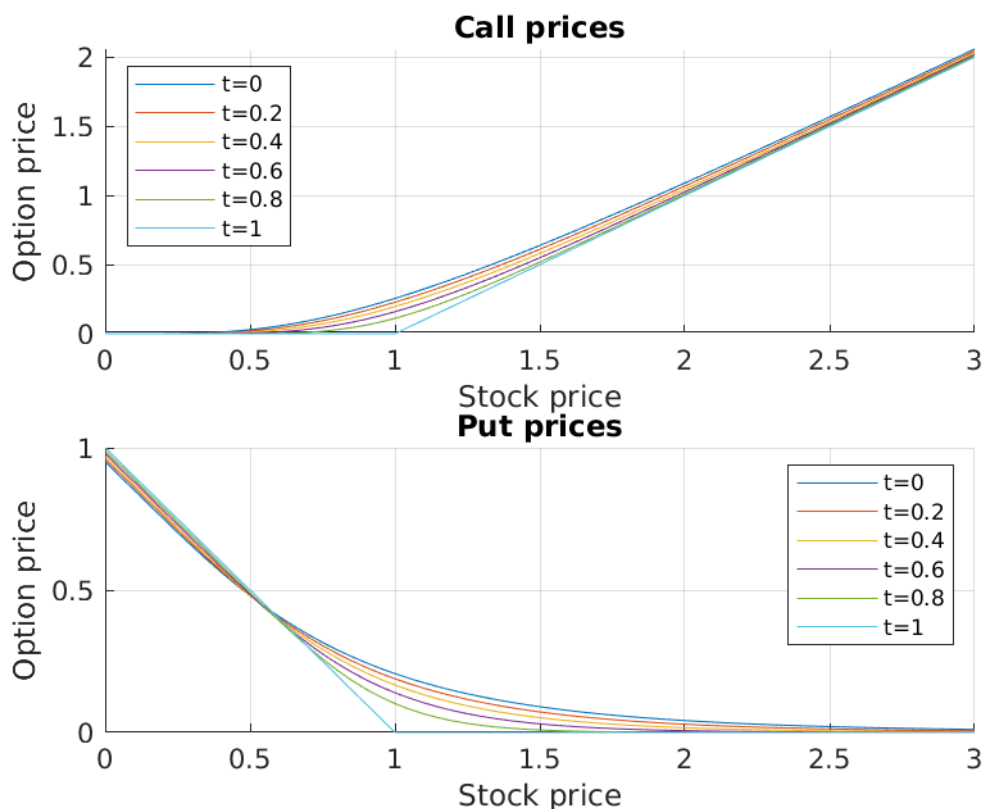
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Assignment - 7
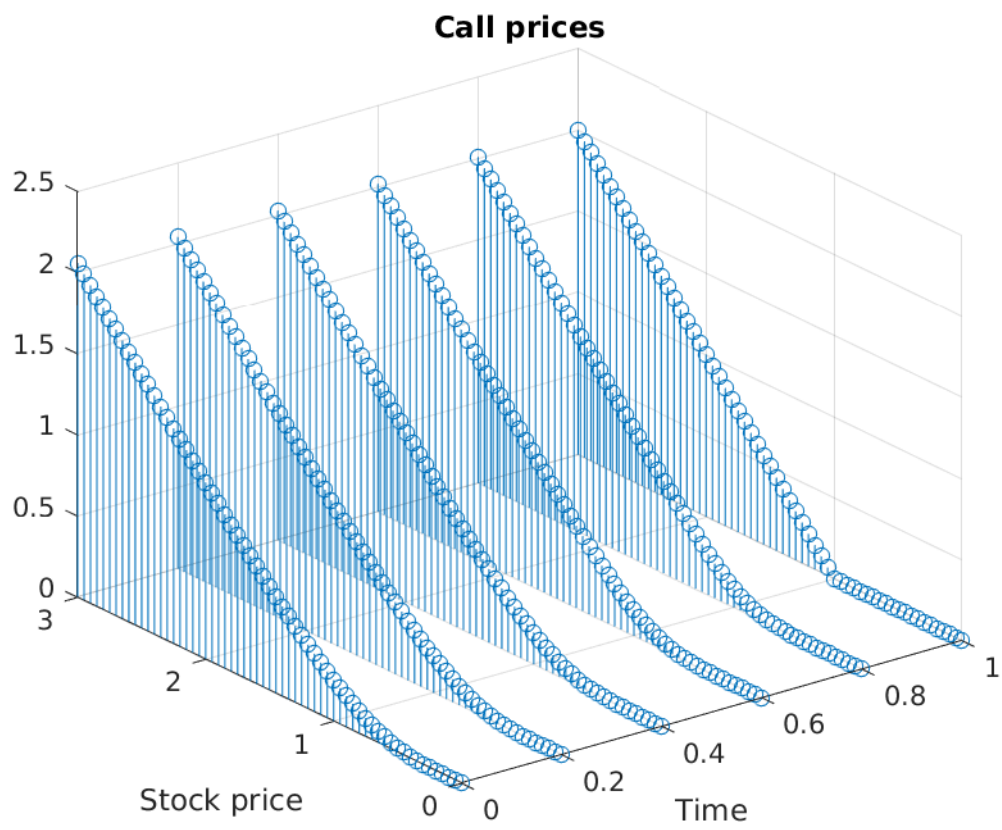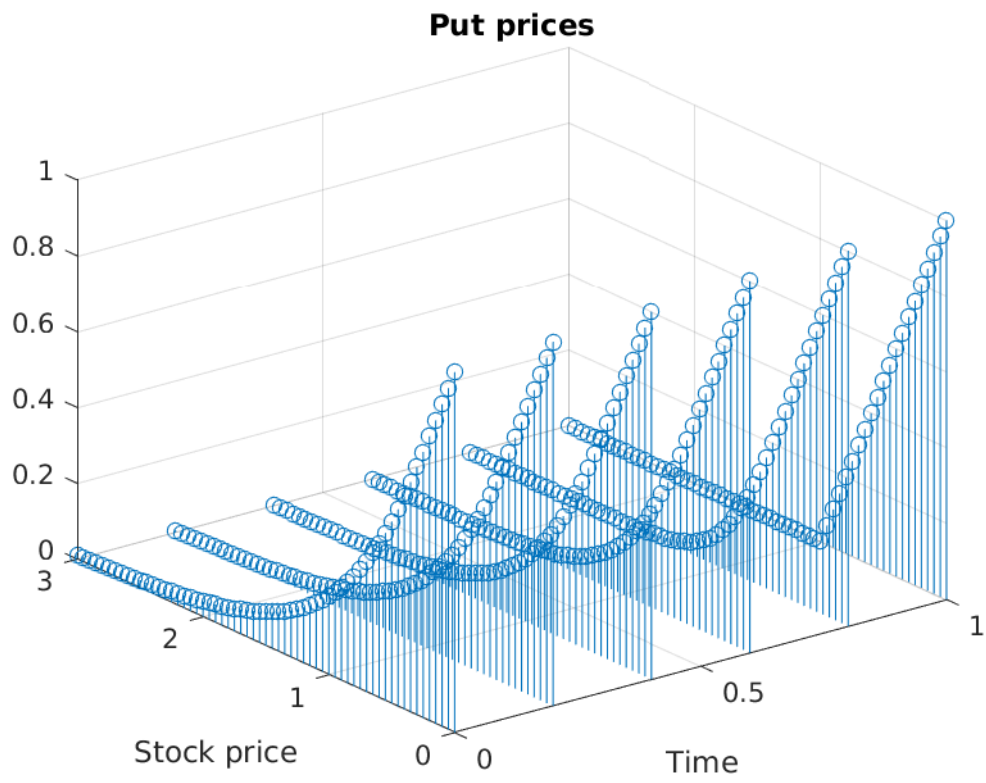
(28 March 2019)

◆ **Question 1**

The required matlab function is written in the file **l7q1.m**

```
%This code is written by Neelabh Tiwari - 160123024 for MA 374 - 2019
%A single function calculate call and put option pricing using BSM model

function [callp,putp]=l7q1(T,K,S,r,sig,t)
    d_1=(log(S/K)+(r+sig^2/2)*(T-t))/(sig*sqrt(T-t));
    d_2=d_1-sig*sqrt(T-t);
    if T==t
        putp=max(K-S,0);
        callp=max(S-K,0);
        return;
    end
    putp=K*exp(-r*(T-t))*normcdf(-1*d_2) - S*normcdf(-1*d_1);
    callp=S*normcdf(d_1)-K*normcdf(d_2)*exp(-r*(T-t));
end
```
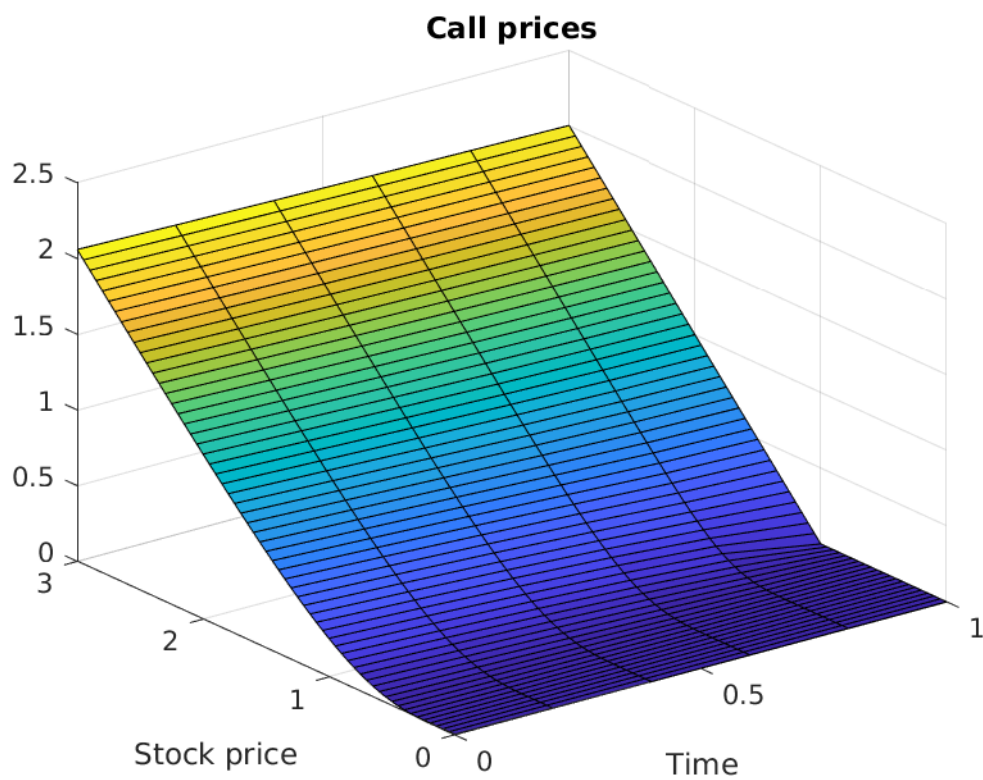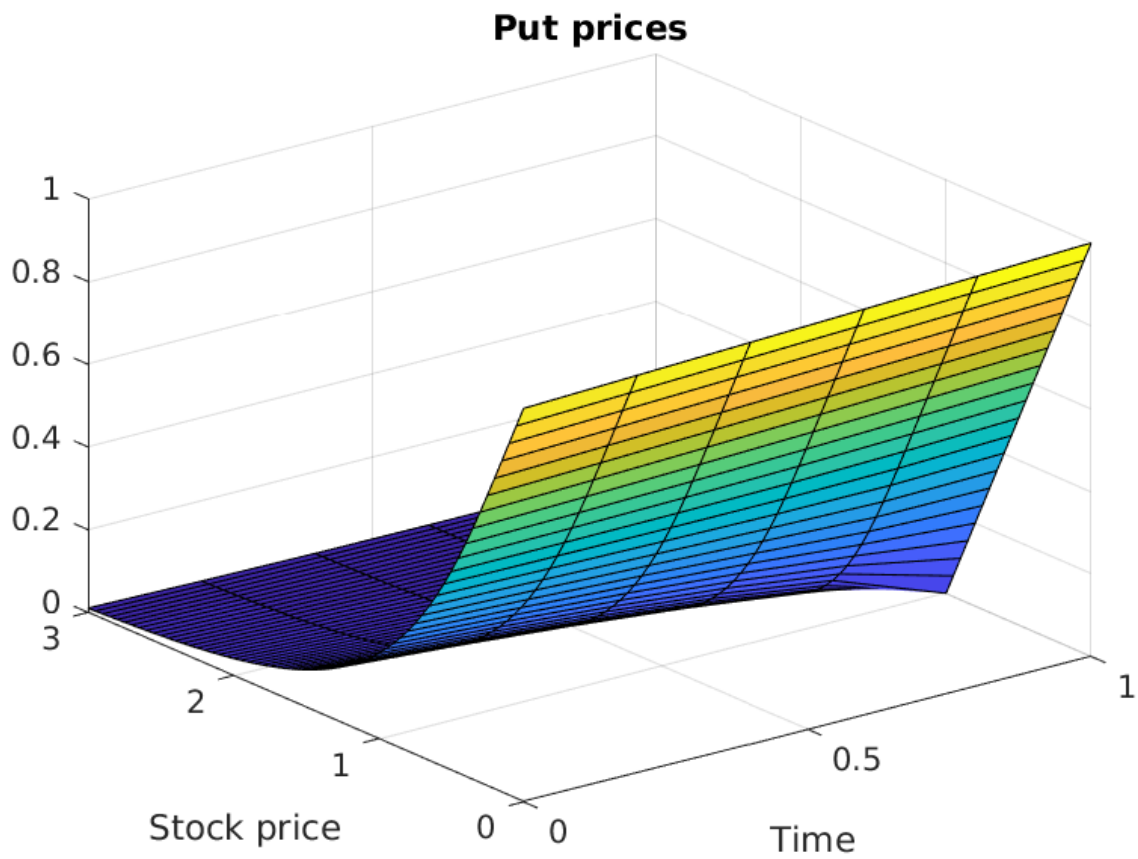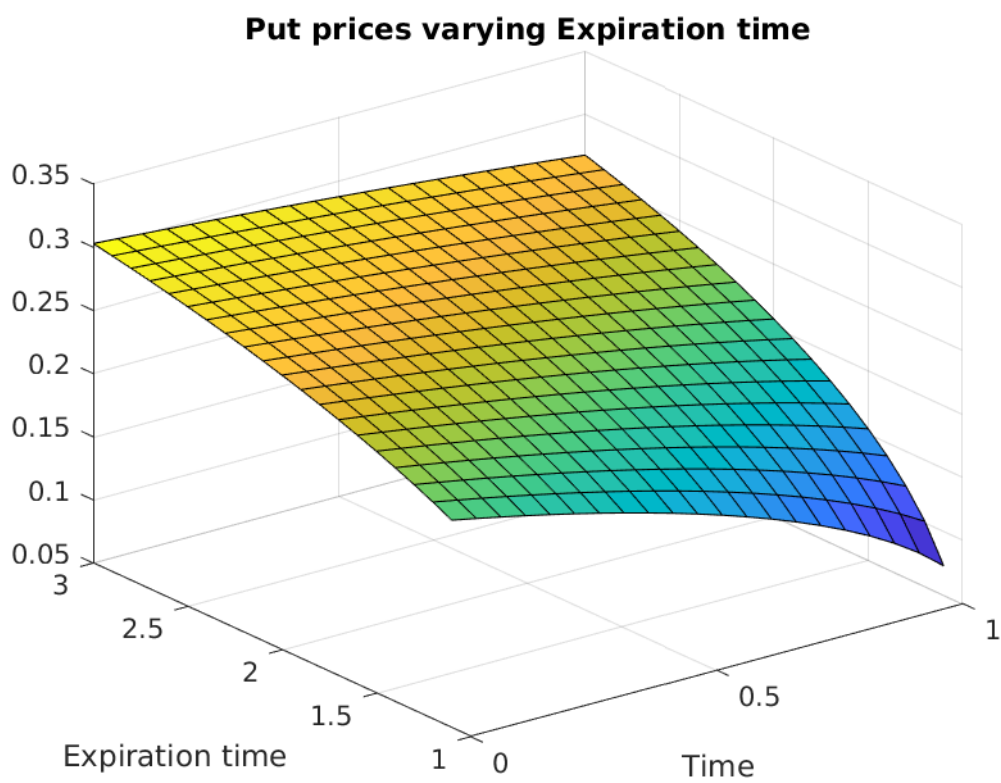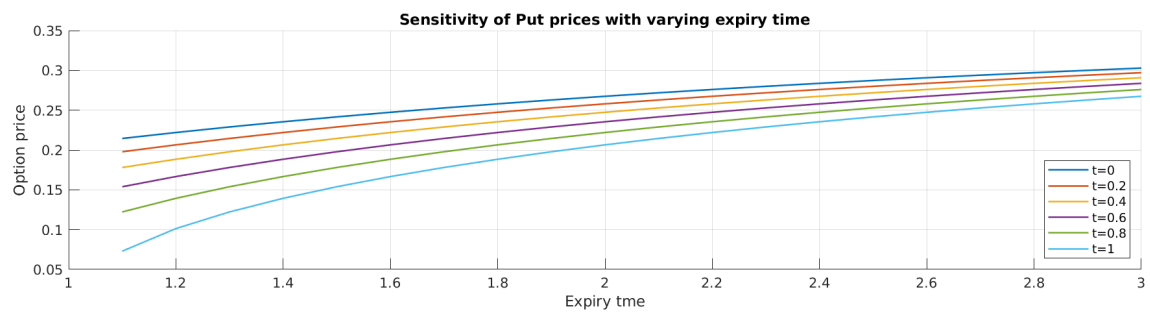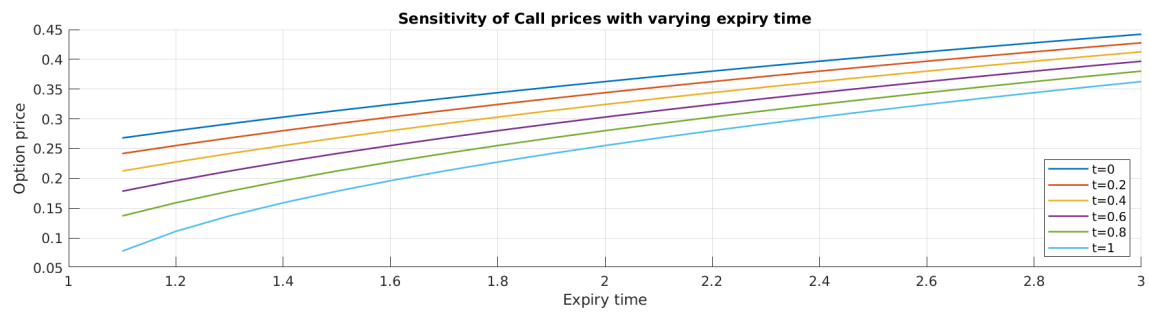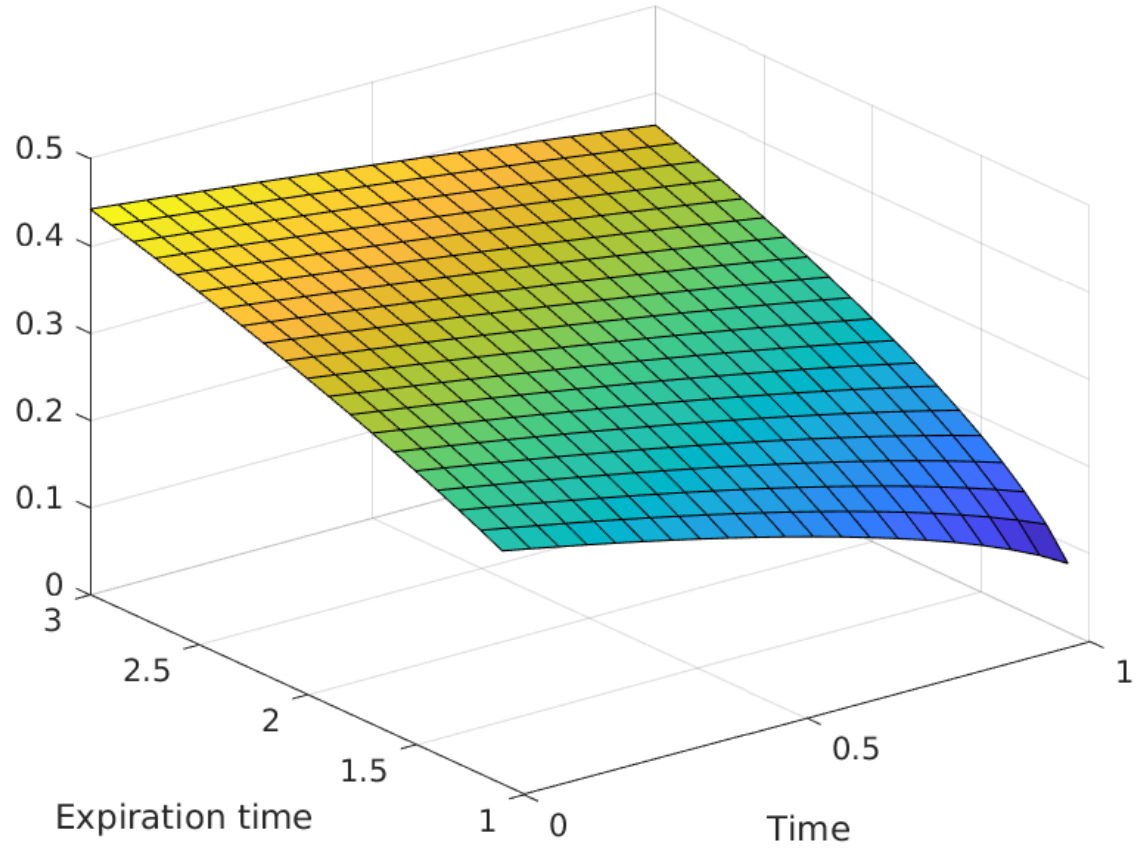
◆ **Question 2**

Put prices

Call prices

❖ Question 3

Put prices

Call prices

◆ Question 4

Sensitivity of Call prices with varying expiry time

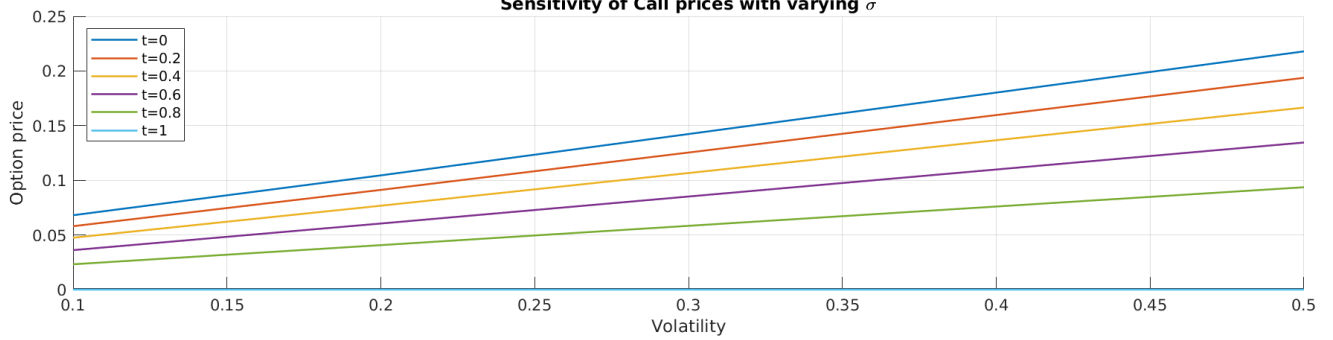Sensitivity of Put prices with varying expiry time
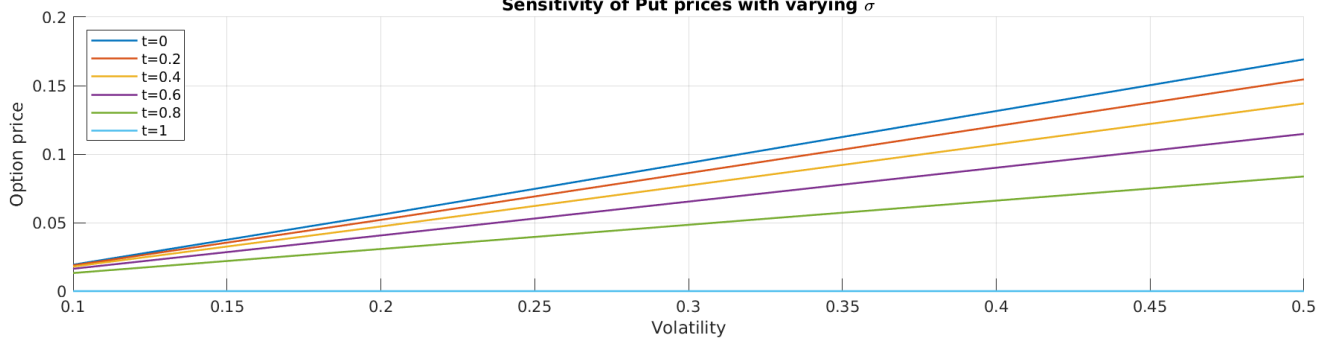

Put prices varying Expiration time
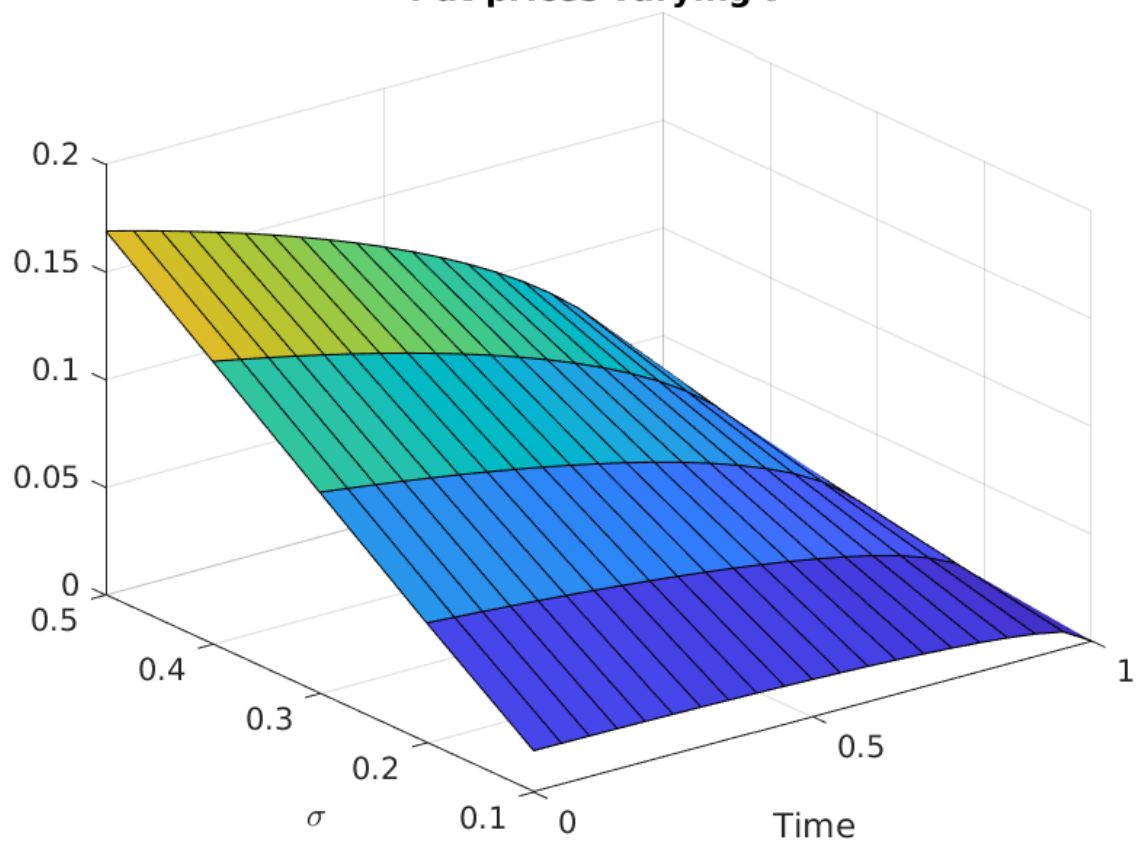
Call prices varying Expiration time
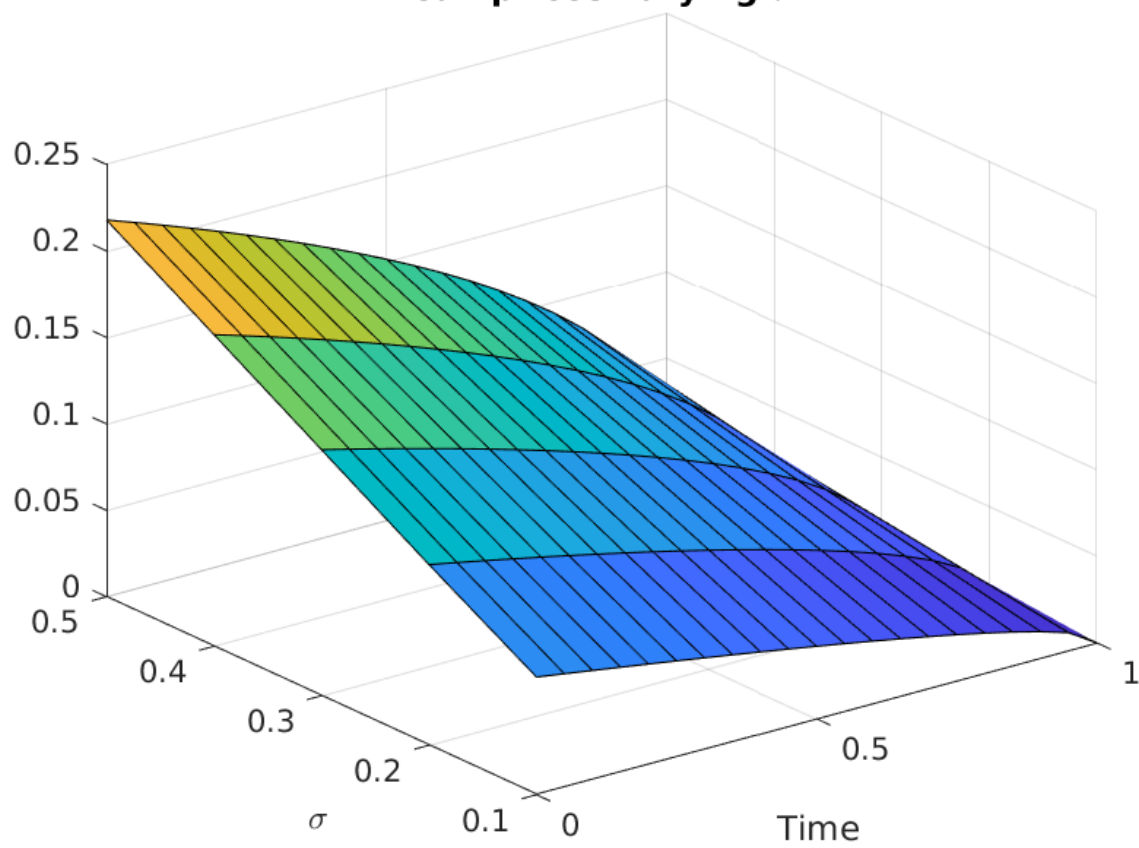

Sensitivity of Call prices with varying σ
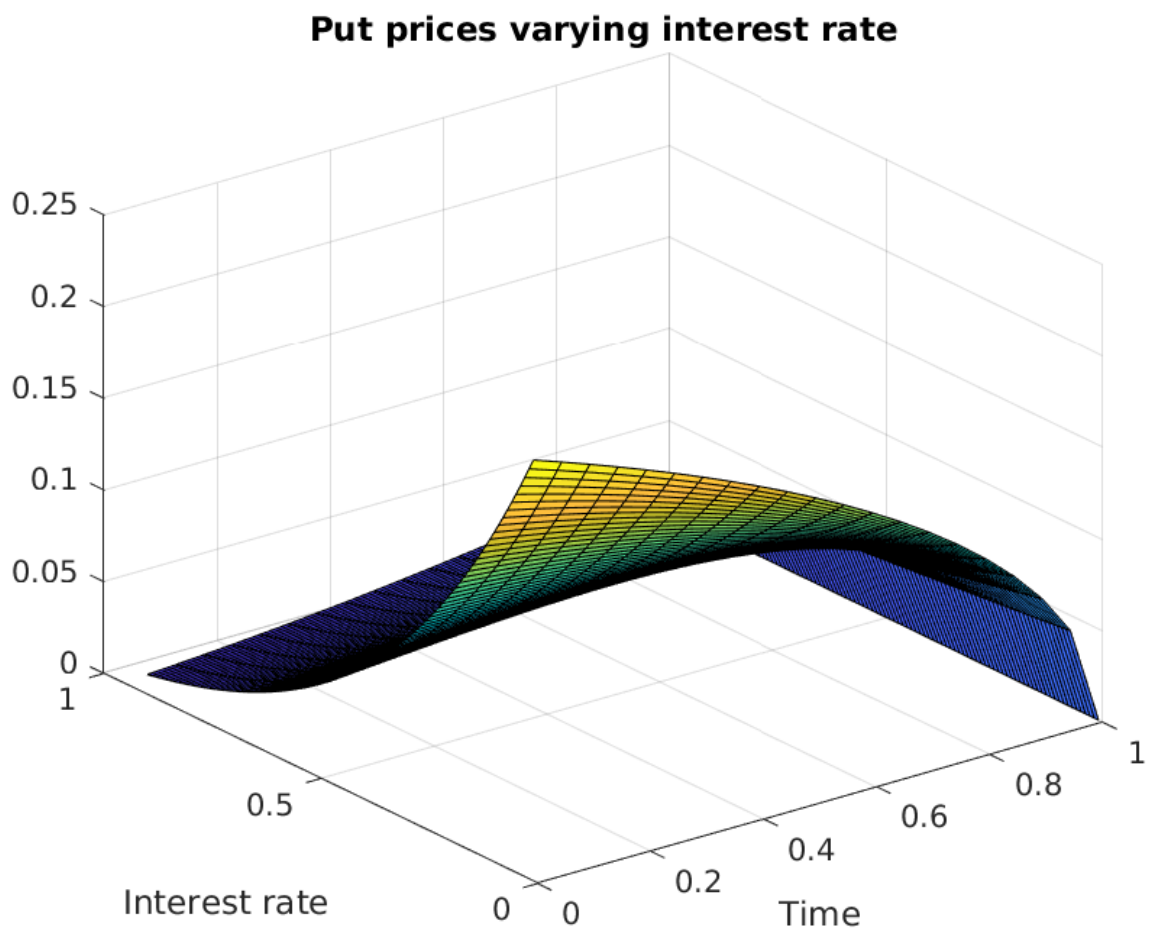

Sensitivity of Put prices with varying σ
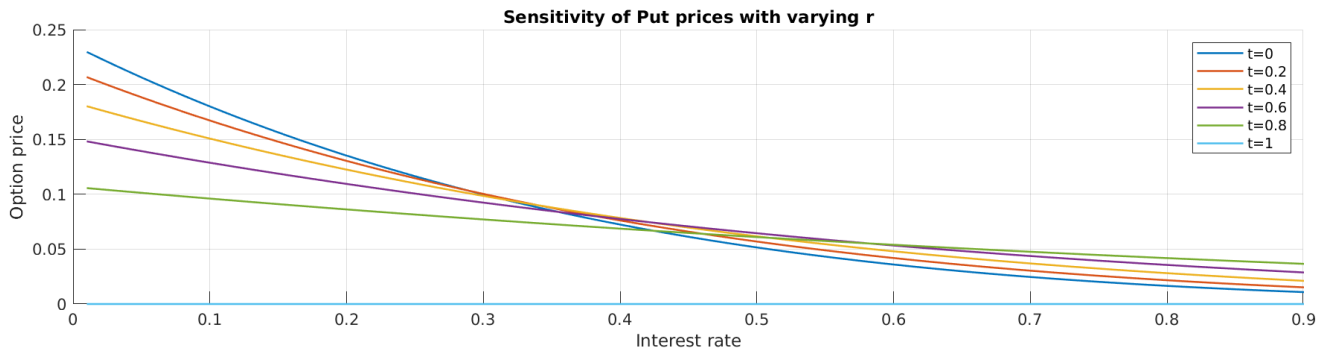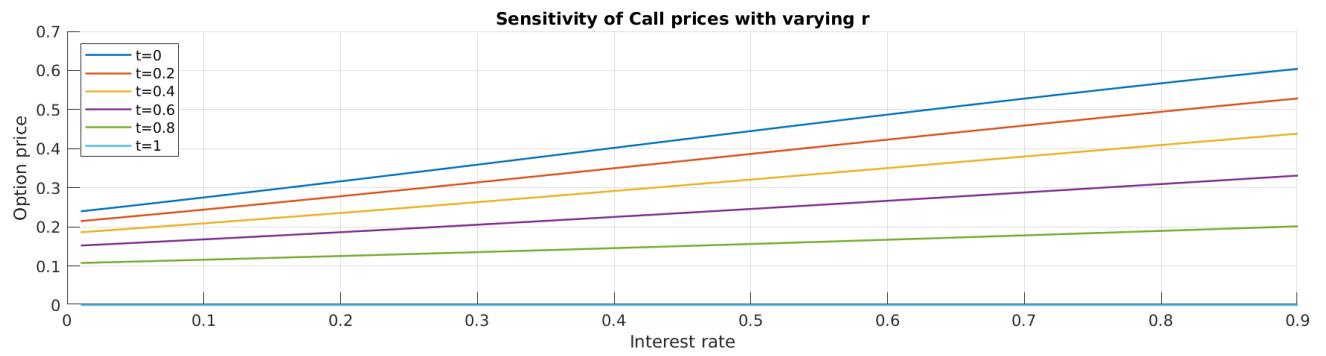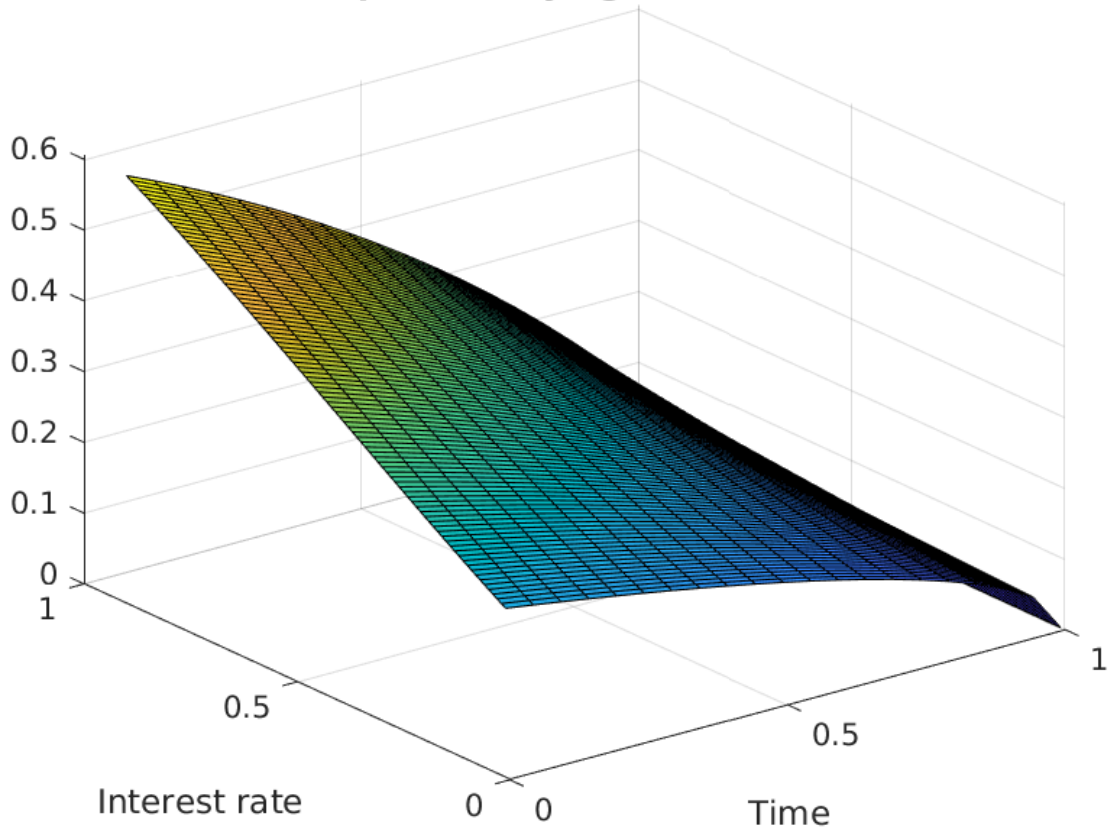
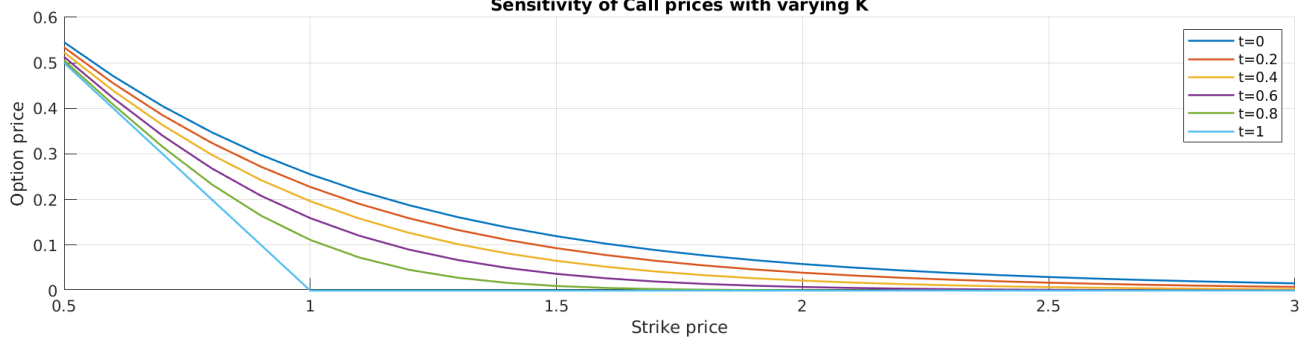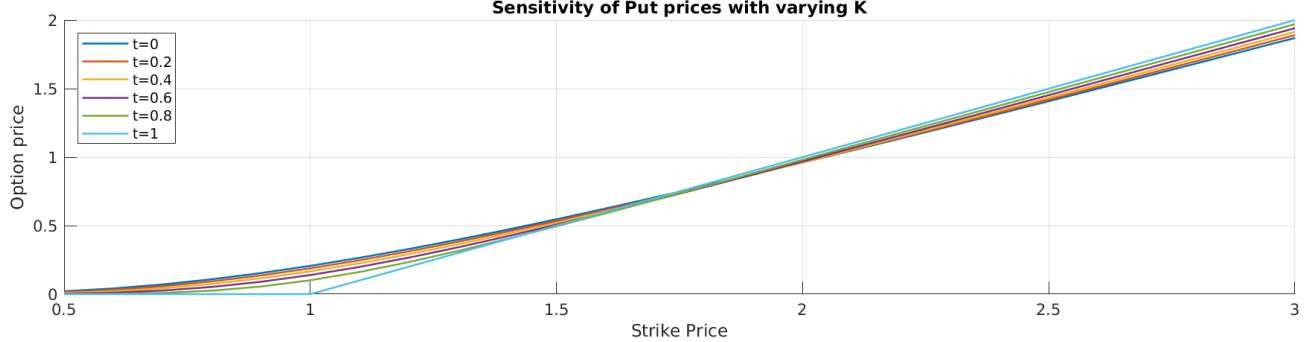**Put prices varying σ**

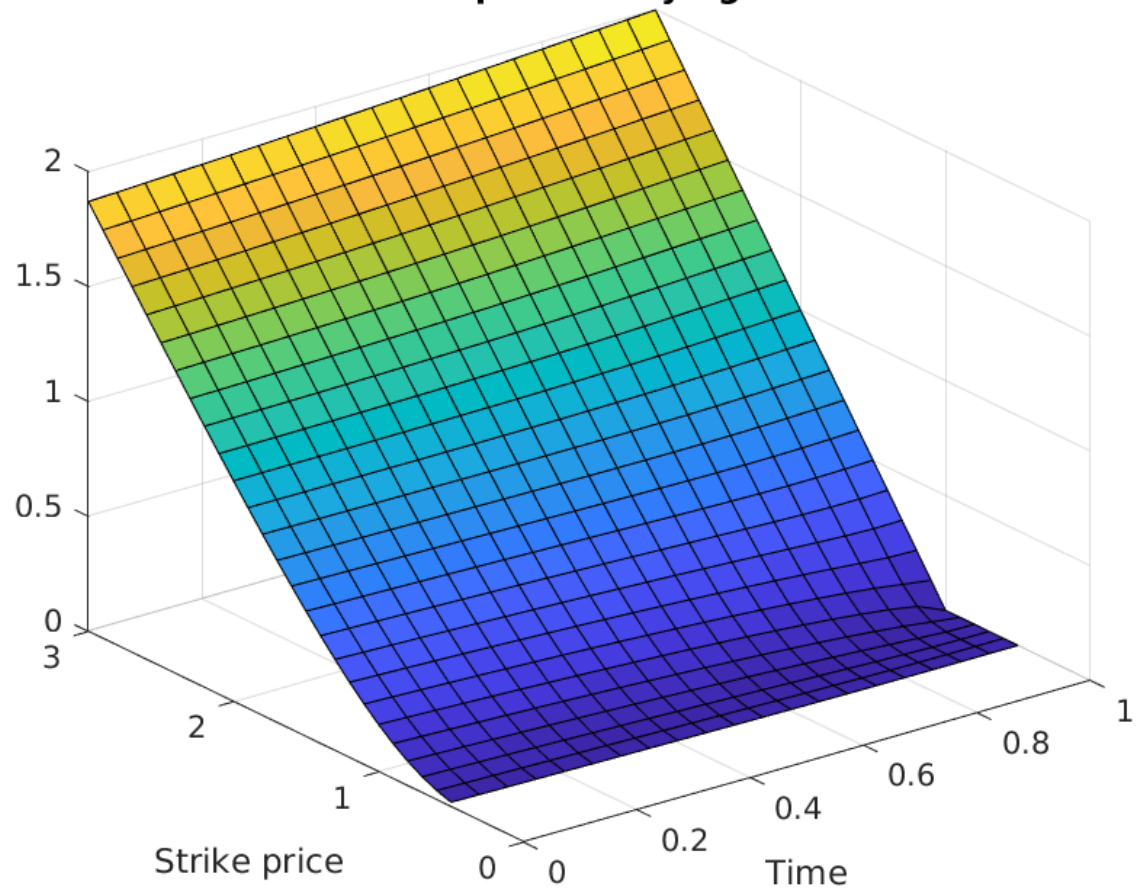**Call prices varying σ**

Sensitivity of Call prices with varying r

Sensitivity of Put prices with varying r

Put prices varying interest rate

Call prices varying interest rate

Sensitivity of Call prices with varying K

Legend:
- t=0
- t=0.2
- t=0.4
- t=0.6
- t=0.8
- t=1

Option price / Strike price

Sensitivity of Put prices with varying K

Legend:
- t=0
- t=0.2
- t=0.4
- t=0.6
- t=0.8
- t=1

Option price / Strike Price

Put prices varying K

Call prices varying K