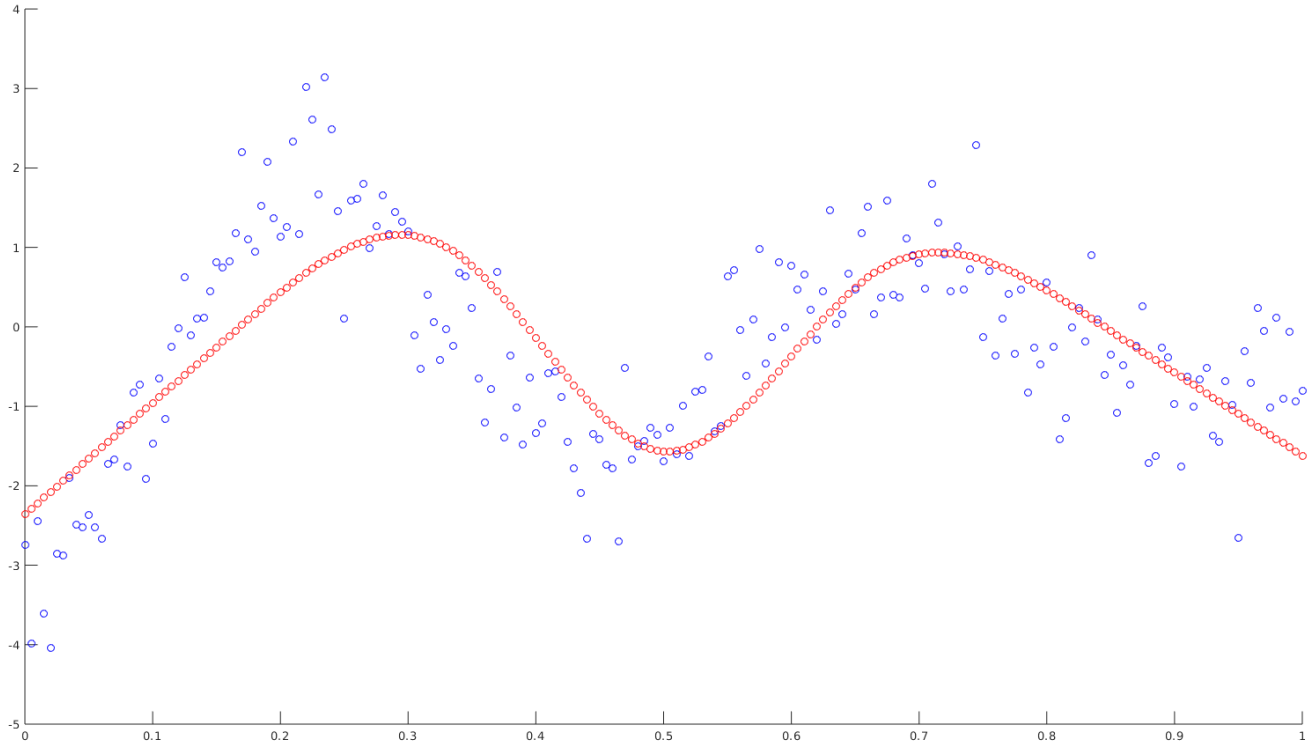
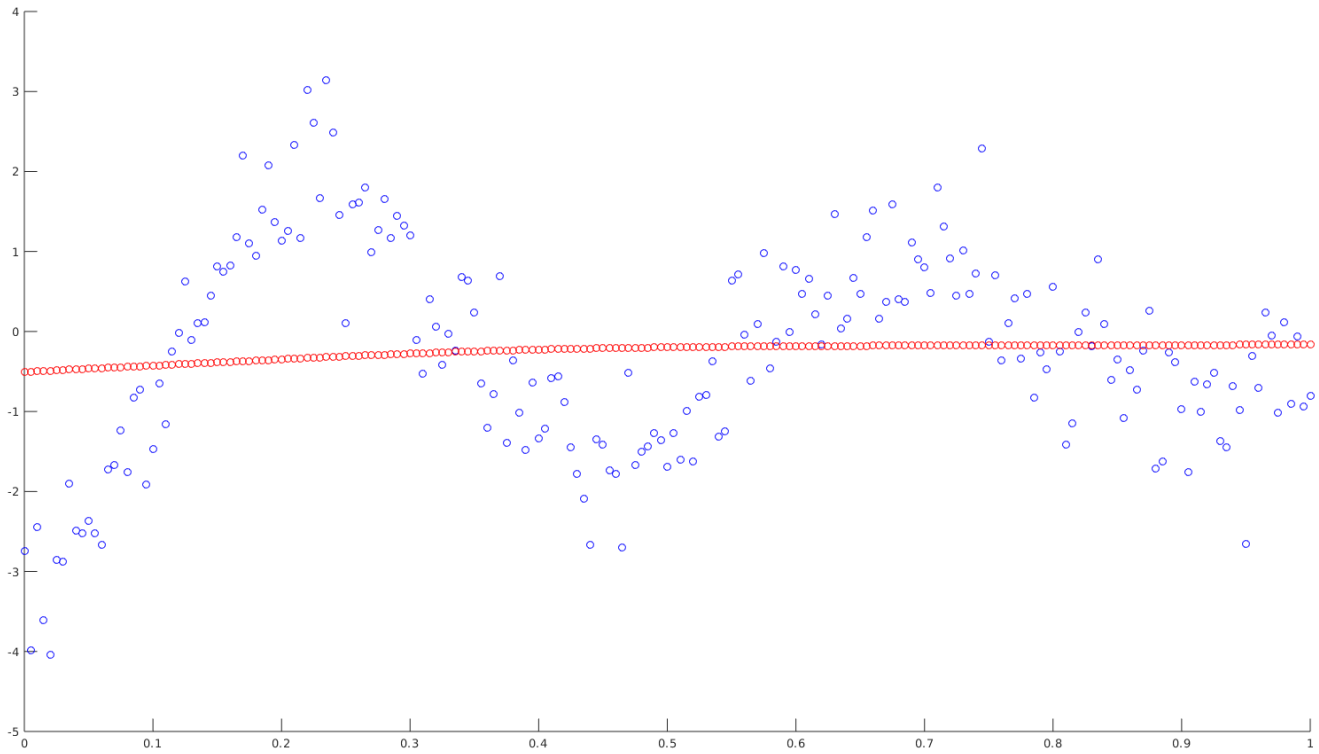
Question 1. When I run my code I get the following graph with lambda = 0 (No Omega matrix). My knots are the following: 0.165, 0.335, 0.500, 0.665, 0.835. Is this reasonable? The blue points correspond to the training data and the red points correspond to the predictor using the x value of the training points to generate. I understand that there are only 5 knot points, but it still seems odd to me. The theta vector is the following (N1 to N5 weights): -2.358, 14.009, -188.493, 485.851, -449.928.



Question 2. When I use lambda = 1, it surpresses the curve too much. It makes me think that I implemented the Omega matrix incorrectly. What I am doing is using symbolic operations within Matlab to get my values. I define the second derivative d_i functions using symbolic variable t, construct the second derivative N functions, and then use integrate(N1'' * N2'', [0, 1]) to get Ω_{12} for example. I defined the second derivative di functions as follows: $6*\left(max\left(x-\varepsilon_i,0\right)-max\left(x-\varepsilon_5,0\right)\right)\Big/\left(\varepsilon_5-\varepsilon_i\right)$. My understanding is that we are integrating with respect to t which goes from 0 to 1 in our dataset therefore I can integrate the N'' functions symbolically but maybe I'm misunderstanding the material. My graph looks like this (next page). I also included my omega matrix.



	1	2	3	4	5
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	95.3700	85.6917	65.4118
4	0	0	85.6917	77.7455	59.9792
5	0	0	65.4118	59.9792	49.4336