

**Department of Chemical Engineering
University of California, Santa Barbara**

ChE 152B

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Guide to Operating the *in silico* MPC Controller and Storing Data

1. Install PCM
2. Run the m-file *W10_152B_Lab4.m* with your parameters
 - a. Select the four tank module
 - b. Select the MPC option
3. Click on the MPC block and insert your controller parameters
4. Click on the input blocks while the simulation is running to execute setpoint changes and disturbances
5. Run the simulation by executing the Simulink model

Guide to Operating the *in vivo* MPC Controller and Storing Data

1. Run the m-file *W10_152B_Lab4.m* with your model parameters
2. Click the MPC block and set with your desired controller parameters
3. Set the gain blocks from the MPC block to “0”
4. Change the filename of the output block for each run
5. Execute the Simulink model, bringing the system to steady-state (these are your nominal conditions)
6. Pause the Simulation
 - a. Set the gain blocks from the MPC block to “1”
 - b. Adjust set-points accordingly
 - c. Enter your nominal conditions in the MPC block
7. Continue the simulation and repeat set-point changes and disturbances as necessary