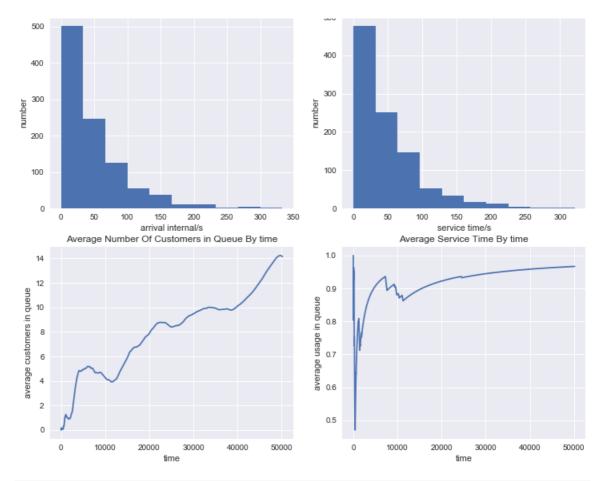
```
In [1]:
             from main.preprocess import *
 In [2]:
             a = Global()
In [13]:
             # mean_arrive=50.0, mean_serve=70.0, num_custom=20, max_queue=5, num_service=1
             a.task_simulate(50.0, 70.0, 50, 10, 1)
            [REPORT] 12(0.240) customers leave due to overflow of queue.
            [REPORT] average service process for served customers is 75.786464
                Customer Arrival Internal Time Distribution in 50 Customers
                                                                         Customer Service Time Distribution in 50 Customers
              12
                                                                    20
              10
                                                                    15
               6
                                                                    10
               4
               2
               0
                                                                     0
                                                                                                             300
                                  arrival internal/s
                                                                                         service time/s
                    Average Number Of Customers in Queue By time
                                                                                  Average Service Time By time
                                                                    1.0
               6
             customers in queue
                                                                    0.8
                                                                  usage in gueue
               5
                                                                    0.6
               3
                                                                  average
             average
                                                                    0.4
               2
                                                                    0.2
               0
                  0
                         500
                               1000
                                      1500
                                             2000
                                                    2500
                                                            3000
                                                                         0
                                                                               500
                                                                                      1000
                                                                                             1500
                                                                                                    2000
                                                                                                           2500
                                                                                                                  3000
                                      time
                                                                                            time
                                                   Served Customers's Distribution By time
              50
              40
              30
              20
              10
                                   500
                                                   1000
                                                                  1500
                                                                                 2000
                                                                                                 2500
                                                                                                                 3000
 In [7]:
             # mean_arrive=50.0, mean_serve=50.0, num_custom=100, max_queue=20, num_service=1
             a.task_simulate(50.0, 50.0, 1000, 200, 1)
            [REPORT] 1(0.001) customers leave due to overflow of queue.
```

[REPORT] average service process for served customers is 48.547394

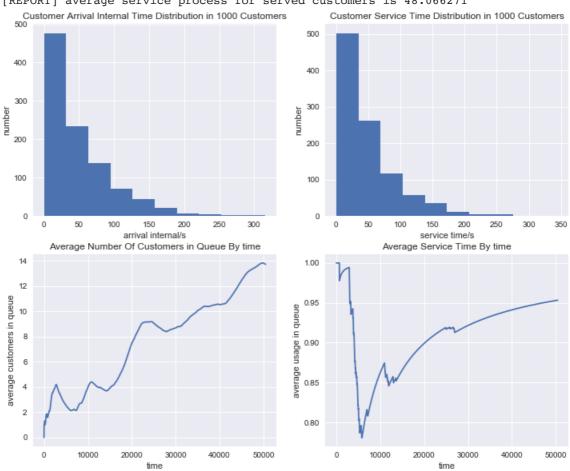
Customer Service Time Distribution in 1000 Customers

Customer Arrival Internal Time Distribution in 1000 Customers



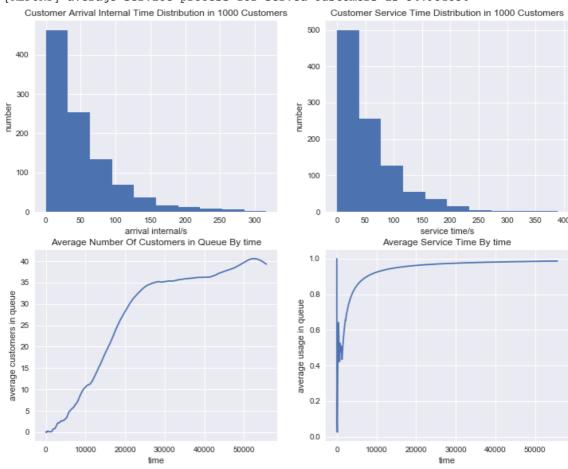
In [8]: # mean\_arrive=50.0, mean\_serve=50.0, num\_custom=100, max\_queue=20, num\_service=1
 a.task\_simulate(50.0, 50.0, 1000, 200, 1)

[REPORT] 1(0.001) customers leave due to overflow of queue. [REPORT] average service process for served customers is 48.066271



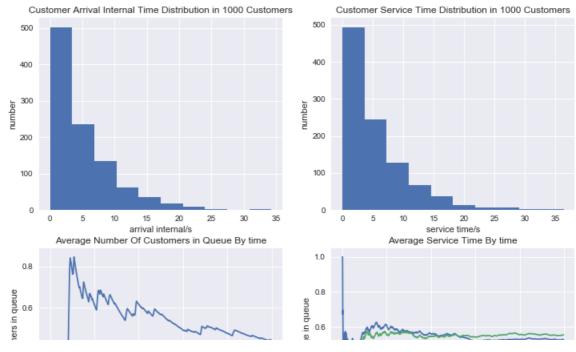
# mean\_arrive=50.0, mean\_serve=50.0, num\_custom=100, max\_queue=20, num\_service=1
a.task\_simulate(50.0, 50.0, 1000, 200, 1)

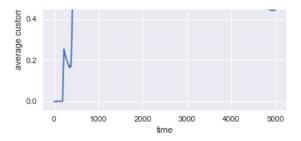
[REPORT] 1(0.001) customers leave due to overflow of queue.
[REPORT] average service process for served customers is 54.931356

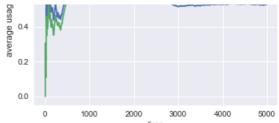


In [8]: # mean\_arrive=50.0, mean\_serve=50.0, num\_custom=100, max\_queue=20, num\_service=1
 a.task\_simulate(5.0, 5.0, 1000, 200, 2)

[REPORT] 1(0.001) customers leave due to overflow of queue. [REPORT] average service process for served customers is 5.394708



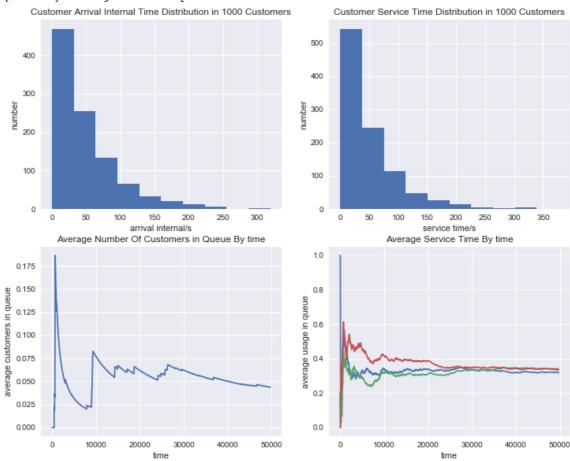




In [6]:

# mean\_arrive=50.0, mean\_serve=50.0, num\_custom=100, max\_queue=20, num\_service=1
a.task\_simulate(50.0, 50.0, 1000, 200, 3)

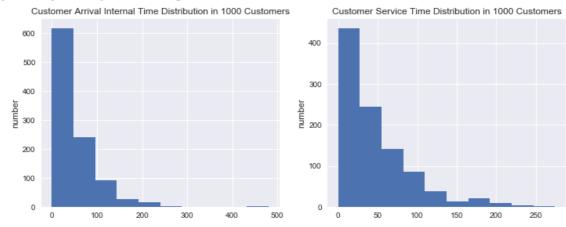
[REPORT] 1(0.001) customers leave due to overflow of queue. [REPORT] average service process for served customers is 49.391316

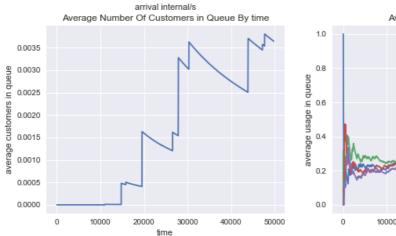


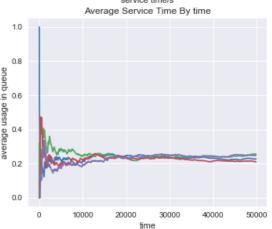
In [5]:

# mean\_arrive=50.0, mean\_serve=50.0, num\_custom=100, max\_queue=20, num\_service=1
a.task\_simulate(50.0, 50.0, 1000, 200, 4)

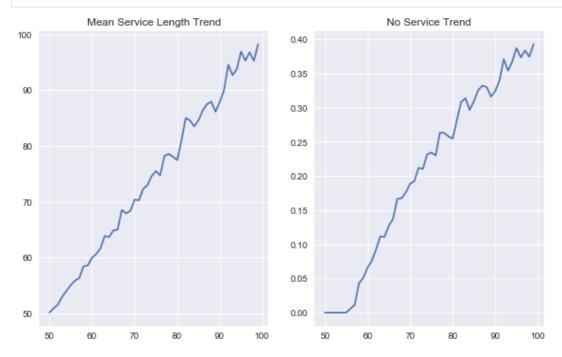
[REPORT] 1(0.001) customers leave due to overflow of queue.
[REPORT] average service process for served customers is 47.088130



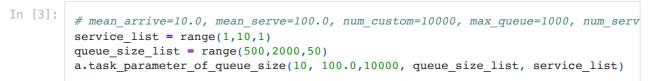


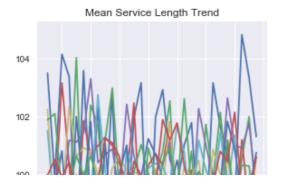


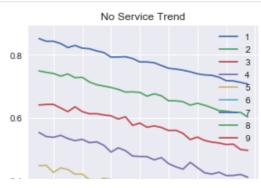
In [4]:
# mean\_arrive=50.0, mean\_serve=100.0, num\_custom=10000, max\_queue=1000, num\_serv
service\_mean\_list = np.arange(50.0, 100.0, 1)
a.task\_parameter\_of\_service\_mean(50.0, service\_mean\_list, 10000, 1000, 1)

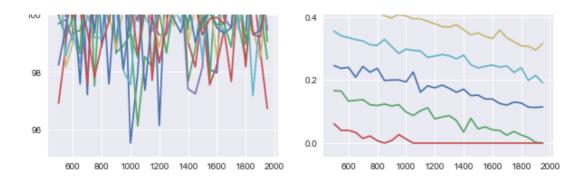


In [8]: # mean\_arrive=50.0, mean\_serve=100.0, num\_custom=10000, max\_queue=1000, num\_serv
 # internal\_mean\_list = np.arange(50.0, 100.0, 1)
 # a.task\_parameter\_of\_arrival\_mean(service\_mean\_list, 100.0,10000, 1000, 1)

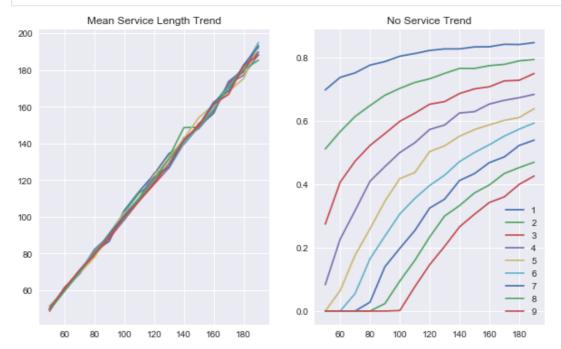








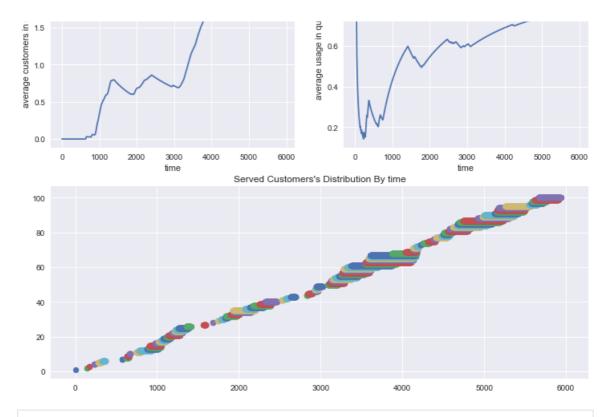
In [3]: # mean\_arrive=10.0, mean\_serve=100.0, num\_custom=10000, max\_queue=1000, num\_serv
 service\_list = range(1,10,1)
 service\_mean\_list = range(50,200,10)
 a.task\_parameter\_of\_service\_mean(10, service\_mean\_list,10000, 1000, service\_list



In [22]: # mean\_arrive=50.0, mean\_serve=50.0, num\_custom=100, max\_queue=20, num\_service=1
 a.task\_simulate(50.0, 50.0, 100, 20, 1)

[REPORT] 1(0.010) customers leave due to overflow of queue. [REPORT] average service process for served customers is 46.709689

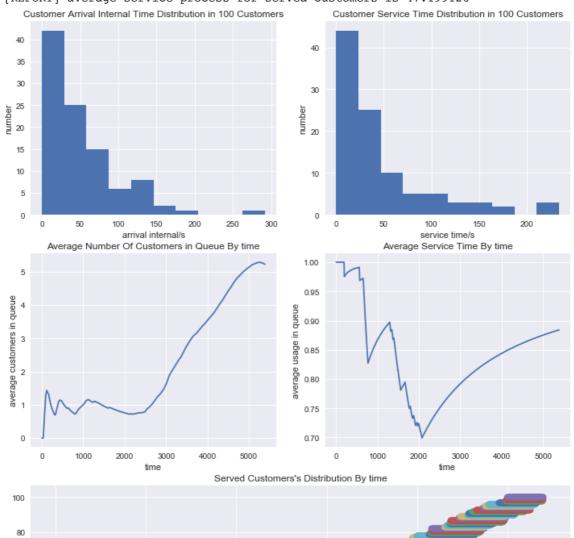


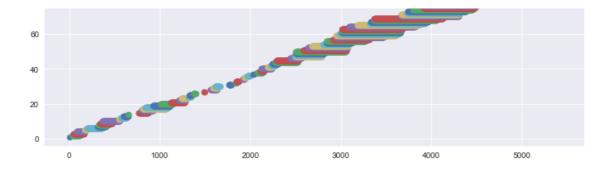


In [20]:

# mean\_arrive=50.0, mean\_serve=50.0, num\_custom=100, max\_queue=20, num\_service=1
a.task\_simulate(50.0, 50.0, 100, 20, 1)

[REPORT] 1(0.010) customers leave due to overflow of queue. [REPORT] average service process for served customers is 47.199126

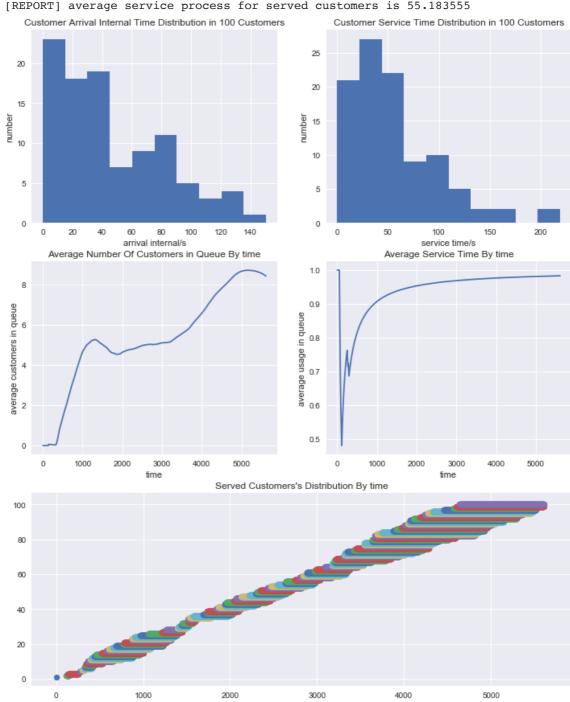




In [23]:

# mean\_arrive=50.0, mean\_serve=50.0, num\_custom=100, max\_queue=20, num\_service=1
a.task\_simulate(50.0, 50.0, 100, 20, 1)

[REPORT] 1(0.010) customers leave due to overflow of queue.
[REPORT] average service process for served customers is 55.183555



In [8]:

# mean\_arrive=50.0, mean\_serve=100.0, num\_custom=100, max\_queue=10, num\_service=
a.task\_simulate(50.0, 100.0, 100., 10, 3)

[REPORT] 1(0.010) customers leave due to overflow of queue. [REPORT] average service process for served customers is 92.430743 Customer Arrival Internal Time Distribution in 100 Customers Customer Service Time Distribution in 100 Customers 30 25 30 20 number 82 number 15 10 10 5 0 0 0 0 25 75 100 125 150 100 200 300 400 500 arrival internal/s service time/s Average Number Of Customers in Queue By time Average Service Time By time 1.0 1.2 0.8 average customers in queue 1.0 average usage in queue 0.8 0.6 0.6 0.4 0.4 0.2 0.2 0.0 0.0 0 1000 3000 1000 2000 4000 Served Customers's Distribution By time 100 80 60 20 0 1000 2000 3000 4000 In [7]: # 人流分布特点 plt.hist(x) plt.title("Poisson Distribution of Customers' Arrival Time") plt.show() Poisson Distribution of Customers' Arrival Time 2500 2000 1500

