**ORI 390R.3 / ME384Q.3:**
**Time-Series Analysis, Modeling and Control**
**Tentative Schedule, Spring 2019**

| Dates | Topic | Chapter |
|---|---|---|
| 1/22 | Introduction; Autoregressive moving average models | 1, 2 |
| 1/24 | Linear regression, Random walk | 2 |
| 1/29, 1/31, 2/5 | ARMA(n, n-1) models | 2 |
| | Green's function of ARMA models | 3 |
| | Inverse & autocovariance function of ARMA models | 3 |
| 2/7, 2/12, 2/14 | Discrete-time control systems | notes |
| | Power spectrum | 3 |
| | Modeling strategy | 4 |
| | Estimation | 4 |
| | Research example | notes/paper |
| 2/19, 2/21 | Adequacy check (F-test, AIC test) | 4, notes |
| 2/26, 2/28 | Forecasting, eventual forecasting, and update | 5 |
| | Exponential smoothing | 5 |
| 3/5 | Uniformly sampled 1st order autoregressive systems | 6 |
| 3/7, 3/12 | Uniformly sampled 2nd order autoregressive systems | 7 |
| 3/14 | ***Midterm on Thursday, March 14th*** | **(in class)** |
| 3/19, 3/21 | No class (spring break) | |
| 3/26 | Application/research Examples | notes/papers |
| 3/28, 4/2, 4/4 | Stochastic trends and seasonality | 9 |
| | Term project examples | 9 |
| 4/9 | Deterministic trends and seasonality | 10 |
| 4/11, 4/16, 4/18 | Vectorial time series/recitations | 11 |
| 4/23, 4/25 | Forecasting based control | 11 |
| 4/30, 5/2 | Term projects and research examples | notes/papers |
| 5/7, 5/9 | Term project presentations/discussions | (15 min. per proj.) |

**Final Exam is on Fri., May 17, 2-5pm. Location – TBD.**