Topic: This special topics course will cover topics in Time Series: Modeling and Analysis

Goal: Real world data comes in various shapes and forms. In this course we will concentrate on mining, modeling and analysis of data that naturally arise sequentially in the form of a series, known as time series - monthly unemployment numbers, monthly income tax collection, sea surface temperature at a location, wind speed at a location (used in deciding to build a wind farm or not), stock prices, to name a few. This course will introduce various tools from Probability and Statistics, Estimation Theory and Prediction theory.

Instructor: S. Lakshmivarahan Office: DEH Room 230

Class Time: T-Th 1.30 – 2.45 PM

Class Room: Felgar Hall - Room 320

Office hours: T-TH- 9.00 to 10.00 am and 3.00 to 3.30pm in Room DEH 230


Proposed Outline:
1 Review of basic concepts from Probability and Statistics
2 Analysis of Stationary ARIMA process
3 Methods of Estimation of ARMA models
4 Basic Forecasting methods
5 Volatility modeling- GARCH models
6 Special Topics: Vector Auto Regression and/or Regime Switching

This course will be a combination of theory and experimentation using MATAB and/or R

Final Exam: Wednesday, May 11th, 2016 from 1.30 to 3.30pm

Grading: Assignments 8-10, one midterm, and final. Assignments–40%, Mid-term-30%, Final Exam 30%.
Grading: A -90 or above; B -80 to 89; C -70 to 79 and D is 60 to 69. Below 60 is F.

For more information contact the instructor: varahan@ou.edu
**Students with Disabilities:** Any student who, because of a disabiling condition, may require some special arrangements in order to meet course requirements should contact the instructor as soon as possible to make necessary accommodations.

**Religious holidays:** It is the policy of the University to excuse absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays.

**Academic Integrity:** All work submitted for an individual grade, such as homework and projects should be the work of that single individual, not their friends or their tutor. Students who fail to do their own work not only violate the Code of Conduct for the University of Oklahoma, but also may fail to learn critical learning objectives for the class.

1. Do not show another student a copy of your homework or projects before the submission deadline.
2. Do not email your project to another student, even if they promise they will not copy it.
4. Make sure that your computer account is properly protected. Use a good password, and do not give your friends access to your account or your computer system.
5. Do not leave thumb drives around a laboratory where others might access them. 
3. The penalties for knowingly permitting your work to be copied are the same as the penalties for copying someone else’s work.

Upon the first documented occurrence of collaborative work, I will report the academic misconduct to the Campus Judicial Coordinator. The procedure to be followed is documented in the University of Oklahoma Academic Misconduct Code. In the unlikely event that I elect to admonish the student, the appeals process is described at [http://integrity.ou.edu/summary_of_the_process.html](http://integrity.ou.edu/summary_of_the_process.html)

Rights and responsibilities under the academic misconduct code, University of Oklahoma Norman Campus can be found here: [http://www.ou.edu/provost/integrity-rights/](http://www.ou.edu/provost/integrity-rights/)

**Adjustments for Pregnancy/Childbirth Related Issues:** Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact me as soon as possible to discuss. Generally, modifications will be made where medically necessary and similar in scope to accommodations based on temporary disability. Please see [www.ou.edu/content/eoo/pregnancyfaqs.html](http://www.ou.edu/content/eoo/pregnancyfaqs.html) for commonly asked questions.

**Title IX Resources:** For any concerns regarding gender-based discrimination, sexual harassment, sexual misconduct, stalking, or intimate partner violence, the University offers a variety of resources, including advocates on-call 24/7, counseling services, mutual no contact orders, scheduling adjustments and disciplinary sanctions against the perpetrator. Please contact the Sexual Misconduct Office 405-325-2215 (8-5) or the
Sexual Assault Response Team 405-615-0013 (24.7) to learn more or to report an incident.

**Student ratings**: The College of Engineering utilizes student ratings as one of the bases for evaluating the teaching effectiveness of each of its faculty members. The results of these forms are important data used in the process of awarding tenure, making promotions, and giving salary increases. In addition, the faculty uses these forms to improve their own teaching effectiveness. The original request for the use of these forms came from students, and it is students who eventually benefit most from their use. Please take this task seriously and respond as honestly and precisely as possible, both to the machine-scored items and to the open-ended questions.