

# CEE7430 Homework 4: Single site streamflow model

Due: 2/13/09

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## Reading:

- Bras and Rodriguez-Iturbe (1985) Chapter 2
  - Sharma, A., D. G. Tarboton and U. Lall, (1997), "Streamflow Simulation: A Nonparametric Approach," Water Resources Research, 33(2): 291-308, <http://www.agu.org/pubs/crossref/1997/96WR02839.shtml>.
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Using what you have learned about single site streamflow models and the methods in the readings above, develop and test a monthly streamflow model for the Colorado River at Lees Ferry using the data from homework 2. Assume that these synthetic streamflows are required for an analysis of reservoir capacity and the reliability of reservoir yield. As discussed in class your work should focus on:

- Representing the marginal probability distribution for flow in each month
- Representing persistence which may be seasonally varying using a low order autoregressive or moving average model
- Considering state dependence in persistence. (See Sharma et al., 1997 for measures of state dependent correlation)

Each of you should use a different approach to representing marginal distributions as follows

- Log (with shift parameter). Fathi Anayah
- Gamma. Aaron Byrd
- Box Cox. Josh Roundy
- Non-parametric quantile interpolation. Vinod Mahat

Prepare a report where you give your results in detail. Prepare a 10 minute PowerPoint presentation that summarizes your procedure, model and results. This is to be presented in class on February 13.