Semester course: STAT 7620 -- 3 CREDIT HOURS (Quarter course 760)

1. Transcript Abbreviation: (maximum 18 characters)
   
   Elem Stat Learning

2. Long course title
   
   Elements of Statistical Learning

3. Course description: (maximum of 250 characters)
   
   Statistical and Machine Learning - Applied modern regression, pattern recognition and clustering techniques for discovery/understanding of underlying statistical structures within large, complex and noisy data sets.

4. Prerequisites / Co-requisites (use quarter and semester codes):
   
   (Stat 6301 (Stat 610) and Stat 6302 (Stat 623)) or ECE 804x/806x or equivalent; Familiarity with Matrix Algebra and Linear Regression Analysis.

5. Exclusions (use quarter and semester codes):
   
   Stat 760

6. A list of topics that make up the course: (One per line, max of 15 topics -- if you course description is a list of topics, I can just use that list)
   
   supervised learning
global and local methods for regression
global and local methods for classification
basis expansions
regularization
kernel smoothing
model assessment
model selection
model inference
model averaging
generalized additive models
tree methods
multivariate adaptive regression splines
unsupervised learning (clustering)

7. Does you class have a component that is not just a lecture (YES/NO):
   
   No

8. If your course is not a straight conversion and adds or removes material, write a brief rationale for the change (one sentence - max 250 characters).
   
   NA