Study Objectives for Midterm Exam
Theory of Economic Growth
Spring 2006, DeJong

- Be comfortable in working with relationships of the form $y = f(x)$, where the function $f()$ comes from the following families: power functions, the logarithmic function, and the exponential function. Specifically, be comfortable in deriving intercepts and slopes analytically, and graphing implied relationships between $y$ and $x$.

- For general versions of production functions, be able to define and compute returns to scale. Understand implications of returns to scale for long-run growth prospects.

- Have command over the Cobb-Douglas production function. Be able to calculate marginal products of capital and labor inputs; marginal rates of substitution; relationships between growth rates of inputs and outputs; isoquant curves, etc.

- Be able to provide formal statements of the various versions of the Solow model we have studied. These include statements of the equations, and identification of the parameters. Be sure you can express the meaning of the equations and parameters in words.

- Be able to reduce multi-equation representations of the Solow model into a single equation characterizing the law of motion of capital, normalized appropriately (e.g., in working with the version of the Solow model featuring technological progress, capital is normalized by dividing by effective units of labor, $AL$).

- Be proficient in producing and working with Solow diagrams, which provide graphical characterizations of the model.

- Be able to derive relationships between normalized capital and the remaining variables in the model (output, consumption, and investment).

- Be able to derive steady state representations of normalized variables of the model, and to translate these representations into laws of motion of per capita variables.

- Be able to provide intuition behind the influence of the parameters of the model on steady state expressions.

- Be able to derive the Golden Rule value of savings, and to provide the interpretation behind this result.