

Important Concepts from Module 1 (pre midterm)

Do I know what are
Vector spaces?

Do I know
how to compute
basis of a vector
space?

Linear
Transformations

Constrⁿ of Orthogonal
Bases

RREF?
null space?
Col^m space?
Pivots?
Rank-Nullity th^m?
Solving Sys. of
linear eq.?

Learning pathways for module 2 (post mid-term)

Do I know to compute EVs & EVs of a matrix?

Do I know their algebraic & geometrical meaning?

Do I know how to diagonalize a matrix using EVs? $D = P^{-1}AP$?

When is it possible to diagonalize a matrix?

What is Spectral decomposition of a matrix?
 $A = QDQ^T$

using EVs?
When is this possible?

Learning pathways for module 3 (post mid-term)

Do I know how to solve homogeneous & non-homogeneous linear ODEs w/ constant coeff using

Ch. eqn?
+
Method of undetermined coeff?

Do I know how to deal w/ repeated roots/ evs (real/complex) & use the notion of generalized E?

Do I know how to draw ph. portrait of solⁿ?
Null-clines? eq^m pts.? stability?

Do I know how to transform a single higher order ODE to a system of 1st order ODE? What about Wronskian?

(i) Have I solved all the worksheet problems?

(ii) Have I studied all the lecture notes and the textbook?