

Linear Algebra
Exercises for Networks: Part I

Due Tuesday, October 29, 2013

1. Write down the adjacency matrix for the network shown below.
2. Below is a list of COA classes and enrollments. Define the *incidence matrix* B as:

$$B = \begin{cases} 1 & \text{if person } j \text{ is in class } i \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

- (a) Determine B
- (b) Calculate $P = B^T B$. What do the off-diagonal elements of P tell you? What do the diagonal elements tell you?
- (c) Calculate $P' = B B^T$. What do the off-diagonal elements of P' tell you? What do the diagonal elements tell you?

Students

1. Alberto
2. Ben
3. Christine
4. Diane
5. Elizabeth
6. Fred
7. George

Classes and Enrollments

1. *Bread, Love, Dreams, Water, Blood, Power, Apples*: A, B, C
2. *Toward a Sustainably Sustainable Sustainability*: B, C, D, E
3. *5D Design: Performance, Puppets, Glitter, Narrative, and Counter-Narrative*: D, F
4. *The Newts and Efts of Mount Desert Island*: E, F, G

