## Group Debrief 4

Learning Goal 1: apply algorithms including the cofactor (Laplace) expansion to find determinants

1. What are significant take aways of this learning outcome?
2. Also reflect on personal connections, experiences and/or any remaining questions you have.
3. Prepare to share from your group's discussion with the class.
Each group member takes a turn for each learning outcome. Try to help each other as material in this class builds upon itself.


Learning Goal 2: investigate the connection of determinants to area and volume

1. What are significant take aways of this learning outcome?
2. Also reflect on personal connections, experiences and/or any remaining questions you have.
3. Prepare to share from your group's discussion with the class.
Each group member takes a turn for each learning outcome. Try to help each other as material in this class builds upon itself.


Modeling of Hot-Mix Asphalt Compaction: A Thermodynamics-Based Compressible Viscoelastic Model

Learning Goal 3: determine eigenvalues, eigenvectors, eigenspaces, and bases for eigenspaces

1. What are significant take aways of this learning outcome?
2. Also reflect on personal connections, experiences and/or any remaining questions you have.
3. Prepare to share from your group's discussion with the class.

Each group member takes a turn for each learning outcome. Try to help each other as material in this class builds upon itself.


Learning Goal 4: link determinants, eigenvalues and eigenvectors to earlier material, including systems of matrix and vector equations, matrix algebra, the inverse matrix theorem, nullspaces, and linear transformations

1. What are significant take aways of this learning outcome?
2. Also reflect on personal connections, experiences and/or any remaining questions you have.
3. Prepare to share from your group's discussion with the class.
Each group member takes a turn for each learning outcome. Try to help each other as material in this class builds upon itself.

Learning Goal 5: characterize trajectories and long-term behavior of dynamical systems using eigenvalue decompositions

1. What are significant take aways of this learning outcome?
2. Also reflect on personal connections, experiences and/or any remaining questions you have.
3. Prepare to share from your group's discussion with the class.

Each group member takes a turn for each learning outcome. Try to help each other as material in this class builds upon itself.


Learning Goal 6: link algebra and geometry of the above, explore applications, and interpret statements

1. What are significant take aways of this learning outcome?
2. Also reflect on personal connections, experiences and/or any remaining questions you have.
3. Prepare to share from your group's discussion with the class.

Each group member takes a turn for each learning outcome. Try to help each other as material in this class builds upon itself.


```
You have requested the following content:
SIAM Review, 2006, Vol. 48, No. 3 : pp. 569-581
The \(\$ 25,000,000,000\) Eigenvector: The Linear Algebra behind Google Kurt Bryan and Tanya Leise https://doi.org/10.1137/050623280
The \(\mathbf{\$ 2 5 , 0 0 0}, \mathbf{0 0 0}, 000\) Eigenvector: The Linear Algebra behind Google
Kurt Bryan and Tanya Leise
https://doi.org/10.1137/050623280
Google's success derives in large part from its PageRank algorithm, which ranks the
```

Financial Markov Process, Creative Commons Attribution-Share Alike 3.0 Unported license.

## Module 3 and Module 4 Review

- Linear Transformations and Orthogonality 10/20-11/8
- 1.8 and 1.9: linear transformations as left multiplication of matrices
- 6.1: length \& angle of a vector, orthogonal vectors
- 2.7: computer graphics, including the application of orthogonal vectors, matrix inverses and transposes problem set 3
- Determinants, Eigenvalues and Eigenvectors 11/8-finals
- 3.1, 3.2, 3.3: determinants alg \& geom, invertibility
- 5.1, 5.2: eigenvectors \& eigenvalues alg \& geom, nullspace $(A-\lambda I)$
- 5.6: eigenvector decomposition, limit, trajectory \& populations
problem set 4
in-class assessment 2 final project

