**Day-by-day class outline:** The class is designed to follow the outline given below. The instructor reserves the right to adjust the schedule if necessary. Students will be informed of adjustments in a timely fashion.

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| Day | Topics/Textbook Sections | Homework |
| 8-16-17 | Introduction |  |
| 8-21-17 | Least squares method |  |
| 8-23-17 | SVD  Image compression |  |
| 8-28-17 | Image compression  Eigenvalues and eigenvectors |  |
| 8-30-17 | Tornado warning, class cancelled |  |
| 9-4-17 | Labor day holiday |  |
| 9-6-17 | Principal Component Analysis (PCA) |  |
| 9-11-17 | Applications of PCA  Handwriting recognition |  |
| 9-13-17 | Handwriting recognition |  |
| 9-18-17 | Interpolation: polynomial I |  |
| 9-20-17 | Interpolation: polynomial II |  |
| 9-25-17 | Interpolation: radial basis functions |  |
| 9-27-17 | LOOCV |  |
| 10-2-17 | LOOCV |  |
| 10-4-17 | Cloud data reconstruction: 2D using RBFs |  |
| 10-9-17 | Cloud data reconstruction: 3D using |  |
| 10-11-17 | RBFs RBFs: MQ and the shape parameter |  |
| 10-16-17 | The method of fundamental solutions |  |
| 10-18-17 | Cloud data reconstruction: 2D using MFS |  |
| 10-23-17 | MFS |  |
| 10-25-17 | Kansa method |  |
| 10-30-17 | Cloud data reconstruction; 2D using Kansa’s method |  |
| 11-1-17 | CS-RBFs KD tree |  |
| 11-6-17 | CS-RBFs |  |
| 11-8-17 | CS-RBFs : 3D graphics |  |
| 11-13-17 |  |  |
| 11-15-17 |  |  |
| 11-20-17 |  |  |
| 11-22-17 | Thanksgiving |  |
| 11-27-17 |  |  |
| 11-29-17 |  |  |
| 12-4-17 | Final Exam Week |  |