

In this document, we highlight important knowledge in Chapters 00—05.
This will be highly relevant to the final exam.

Chapter01_Mathematical_Backgrounds

Pages 02, 04, 05, 09, 10, 12, 16, 20, 22, 25, 27

Chapter 02 Motion and Scene Representation (Part 1 Basic Expression)

Pages 08, 12, 15, 16, 17, 18, 20, 24, 27, 28, 31, 43, 48

Chapter 02 Motion and Scene Representation (Part 2 Lie Group and Lie Algebra)

Pages 04, 05, 09, 10, 11, 12

Remark: Additional important knowledge will be introduced in the future. Students are required to understand the application of Lie Group and Lie Algebra to bundle adjustment.

Chapter 03 Image Formation (Part 1 Perspective Projection)

Pages 07, 09, 10, 15, 17, 18, 19, 20, 21, 22, 26, 27, 31, 33, 34, 36, 44, 50

Remark: Detailed information about Pages 09 and 10 will be introduced in the future.

Chapter 03 Image Formation (Part 2 Distortion and Supplementary Knowledge)

Pages 02, 04, 05, 14, 16, 17, 25

Chapter 04 Camera Calibration

Pages 02, 03, 07, 08, 14, 15, 16, 18, 19, 20, 21, 27, 28, 29, 30, 31, 32, 33, 34, 35, 39, 40, 41

Remark 1: For page 18, students are not required to know details about QR decomposition. Exam will not involve mathematical computation related to QR decomposition.

Remark 2: For pages 33, 34, and 35, students are required to understand the main idea of camera parameter recovery. Exam will not involve specific derivations.

Chapter 05 Correspondence Estimation (Part 1 Small Motion)

Pages 04, 05, 06, 07, 12, 16, 17, 18, 19, 20, 22, 23

Remark 1: For pages 16, 17, and 18, students are required to know how to derive M-matrix.

Remark 2: For pages 19 and 20, exam will not involve the computation of eigenvalues and eigenvectors.

Chapter 05 Correspondence Estimation (Part 2 Large Motion)

Pages 05, 08, 09, 10, 12, 14, 15, 16, 17, 20

Remark: For pages 09 and 10, students are required to know how to derive M-matrix.

Chapter 05 Correspondence Estimation (Part 3 Clarification and SIFT)

Page 03, 07, 12, 13, 14, 15, 16, 17, 18, 20, 24, 26, 28, 29, 31, 32, 33, 35, 38, 42, 43