

Math 3980T Weekly Report

**Modern mathematics and applications in computer graphics and vision**

Benjamin Carman | Mathematics Tutorial | Spring 2019

# Week 1. Introduction

Discussion of the course outline

Readings Assignments:

Read Chapter 1. Introduction of Reference 2.

# Week 2. Algebra

Math Assignments:

* Read Chapter 1. Linear Algebra.
* Read exercises 2-20, prepare for discussion at week 3.

Notes:

1. Materials in Section 1.1-1.3 and 1.5 have been covered in Math 3200.
2. Section 1.4 and 1.6 have two new concepts – Dual spaces and algebras

Computer Assignments (Read 1.1.1)

* Download open-source Toolboxes:

The Robotics Toolbox for MATLAB® and

The Machine VisionToolbox for MATLAB®

# Week 3. Algebra

1. Discussion Exercises

Q12 (Transition matrix)

Q13

Q14

Q15

Q16

Q20

1. Reading assignment: 2.1-2.3
2. Reading assignment: Chap2 (computer book)

# References

1. Modern Mathematics and Applications in Computer Graphics and Vision, Hongyu Guo, World Scientific Pub Co Inc, 2014. ISBN-10: 9789814449335.
2. Robotics, Vision and Control: Fundamental Algorithms In MATLAB, Peter Corke, Springer, 2017. ISBN 9783319544137.
3. Robot Vision, Berthold K.P. Horn, MIT Press, 1986. ISBN 9780262081597.