Mathematical Methods for Robotics, Vision, and Graphics
CS 205A, Spring 2015

Course Description
Continuous mathematics background necessary for research in robotics, vision, and graphics. Possible topics: linear algebra; the conjugate gradient method; ordinary and partial differential equations; vector and tensor calculus. Prerequisites: 106B or X; MATH 51; or equivalents.

1 Basic Information

1.1 Staff

- **Instructor:** Justin Solomon  
  **Office:** Clark S297  
  **Telephone:** 650-725-6521  
  **Email:** justin.solomon@stanford.edu  
  **Office hours:** W, 10am-12pm (Clark S297)

- **Course assistant:** Brian Jo  
  **Email:** brianjo@stanford.edu  
  **Office hours:** Tu, 10am-12pm (Gates B26A)

- **Course assistant:** Thomas Palomares  
  **Email:** tpalo@stanford.edu  
  **Office hours:** Tu, 3pm-5pm (Gates B26A)

- **Course assistant:** David Hyde  
  **Email:** dabh@stanford.edu  
  **Office hours:** Th, 4pm-5pm (Gates B28)

1.2 Class

- **Time:** MW, 2:15pm to 3:30pm  
  **Place:** Gates B3

1.3 Section

- **Time:** F, 11am-11:50am  
  **Place:** Gates B3
1.4 Web

The course web page, which will contain lecture slides, homeworks, announcements, and other important materials, can be found at:

http://cs205a.stanford.edu

We will be using Piazza to host a course bulletin board and for some online announcements; be sure to register for the CS 205A page. All students are expected to register at:

http://piazza.com/stanford/spring2015/cs205a

2 Course Policies

2.1 Grading

Your grade will be evaluated using the following distribution:

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework (approx. weekly)</td>
<td>60%</td>
</tr>
<tr>
<td>Midterm</td>
<td>15%</td>
</tr>
<tr>
<td>Final</td>
<td>25%</td>
</tr>
<tr>
<td>Participation</td>
<td>±5%</td>
</tr>
</tbody>
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2.2 Late Assignments

Assignments are due at 3:30pm on the listed due date. You will be permitted a total of four late days over the course of the quarter, measured in periods of 24 hours; only two late days can be applied to any single assignment. Beyond this total, late assignments will lose 25% credit per day (additively).

2.3 Textbook

The primary textbook for CS 205A is *Numerical Algorithms*, by Solomon (the instructor); the text was written specifically for this course. A PDF is available on the course website. Since the textbook will not appear until late April, the bookstore is selling a printed copy as a course reader. A supplementary optional textbook is *Scientific Computing*, by Heath. This textbook covers similar material and has alternative explanations that may appeal to some students.