

782: Advanced 3D Image Generation

COURSE INFORMATION

- **Content Description** : Photorealistic rendering, lightfields, monte carlo methods, advanced ray tracing, photon maps, radiosity, participating media and tone reproduction.
- **Prerequisites**: CSE681
- **Course Software**: C/C++, PBRT
- **Text**: *Design and Implementation of a Physically-based Rendering System*, by Matt Phar, Greg Humphreys, Morgan Kaufman, 2004, (web page: www.pbrt.org)

CLASS INFORMATION: Autumn '06

Instructor Rick Parent 787 Dreese Lab 2-0055 email: parent Class BO314 MWF 10:30 Grader TBA	Grading <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">labs (5+10+10+15)</td> <td style="text-align: right; padding: 2px;">40%</td> </tr> <tr> <td style="padding: 2px;">Homework (1x5)</td> <td style="text-align: right; padding: 2px;">5%</td> </tr> <tr> <td style="padding: 2px;">midterm</td> <td style="text-align: right; padding: 2px;">20%</td> </tr> <tr> <td style="padding: 2px;">project (reporting and presentation)</td> <td style="text-align: right; padding: 2px;">10%</td> </tr> <tr> <td style="padding: 2px;">project</td> <td style="text-align: right; padding: 2px;">25%</td> </tr> </table> Information Directory: /usr/class/cse782 Class Newsgroup: cis.course.cis782	labs (5+10+10+15)	40%	Homework (1x5)	5%	midterm	20%	project (reporting and presentation)	10%	project	25%
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Lectures	Dates	Topic	Chapters
1	Sept 21	Introduction	1
1	Sept 23	Basic ray tracing review	1
2	Sept. 26, 28	PBRT	1
3	Sept. 30, Oct. 3, 5	Shapes	3-4
2	Oct. 7, 10	Color and radiometry	5
3	Oct. 12, 14, 17	Tone reproduction	8
1	Oct. 19	Reflection models	9
1	Oct. 21	Materials	10
1	Oct. 24	Textures	11
1	Oct. 26	Sampling	7.4-7.6
2	Oct. 28, 31	Monte Carlo Fundamentals	13-14
2	Nov. 2, 4	Monte Carlo Integration	15.1-15.6
5	Nov. 7, 9, 11, 14, 16	Light Transport	16-17
1	Nov. 18	Sub-surface scattering	18.2.3
3	Nov. 21, 23, 28	Volume rendering	12, 15.7
4	Nov. 30, Dec. 2, 5, 7	Radiosity	Cohen & Wallace