Current schedule is presented below. Also the topics to be presented in the first phase are mentioned. Please feel free to present other topics of your choice as well after you have presented the ones mentioned below (and if time permits in your talk). I have provided the links for the materials to be used for reading.

Please recall that the talks have to be for 1hour and 30 minutes. We leave about 30 minutes for questions. The audience is free to ask questions during the presentation as well. Please try to keep your presentations self-contained and clearly understandable.

You can make the presentations using the white board, slides or a combination of both. After you presentation, please send me a paragraph which is an abstract of your talk, what you presented etc.

After each talk, all the students in the class are encouraged to make comments/suggestions on the talk in the IVLE forum (for example whether they found the talk, too fast, too slow, which parts they understood well, which parts very not very clear, any other suggestions etc.)

1.

Machine learning. 25 January. Group: Tian Shangxuan, He Xiangnan, Ji Kun, Guan Peiyong, Wang Hancheng

PAC learning, Occam's razor,

http://pages.cs.wisc.edu/~shuchi/courses/787-F07/scribe-notes/lecture25.pdf

http://pages.cs.wisc.edu/~shuchi/courses/787-F07/scribe-notes/lecture26.pdf

Avrim's survey, Predicting from Expert Advice, weighted majority algorithm,

[www.cs.cmu.edu/~avrim/Papers/survey.ps.gz](http://www.cs.cmu.edu/~avrim/Papers/survey.ps.gz)

2.

Combinatorial algorithms. 1st Feb. Group: Wangsheng, Ye Hong, Jin Yong, Wangwei, Gordon.

Hopcroft-Karp algorithm for maximum matching in bipartite graphs. http://www.cs.umd.edu/~samir/858/lec01b.pdf

Gale–Shapley algorithm: solves the stable marriage problem : http://www.cs.cmu.edu/afs/cs.cmu.edu/academic/class/15251-f10/Site/Materials/Lectures/Lecture21/lecture21.pdf

Hungarian algorithm for perfect maching: http://www.cse.ust.hk/~golin/COMP572/Notes/Matching.pdf

Hungarian algorithm for minimum cost assignment: http://www.math.harvard.edu/archive/20\_spring\_05/handouts/assignment\_overheads.pdf

3.

Streaming algorithms. 8th Feb. Group: NARMADA SAMBATURU, SUBHASREE BASU, ALOK KUMAR KESHRI, RAJIV RATN SHAH, VENKATA KIRAN YEDUGUNDLA, VU VINH AN

Present the crash course : http://people.cs.umass.edu/~mcgregor/slides/10-jhu1.pdf

For further reading. Muthu's notes : http://www.cs.mcgill.ca/~denis/notes09.pdf

4.

Linear-Programming Algorithms. 15 Feb. Group: Aissan, Anup, Seung Min, Le, David.

Elipsoid algorithm: Ryan O'Donnell lecture notes: <http://www.cs.cmu.edu/afs/cs.cmu.edu/academic/class/15859-f11/www/notes/lecture08.pdf>

5.

Crypto algorithms. 22nd Feb. Group: Supartha, Aarthi, Etkin, Darly Seah, Rajendra.

RSA algorithm. http://www.math.washington.edu/~morrow/336\_09/papers/Yevgeny.pdf

Reed Solomon error correction. http://ptgmedia.pearsoncmg.com/images/art\_sklar7\_reed-solomon/elementLinks/art\_sklar7\_reed-solomon.pdf

6.

Random walks and Markov Chains. 8 March. Group: Girish, Mimentha, Rahul, Zilig, Karthik.

Applications for 2-SAT and 3-SAT.

http://www.cs.berkeley.edu/~luca/cs174/notes/note8.ps

<http://www.cs.berkeley.edu/~luca/cs174/notes/note9.ps>

For reference please look at the chapter 6 of the book ‘Randomized Algorithms’ by Rajeev Motwani and Prabhakar Raghavan (will be available in the library).

7.

22nd March.

Group: Tian Shangxuan, He Xiangnan, Ji Kun, Guan Peiyong, Wang Hancheng.

Topic: Pagerank algorithm.

References:

<http://en.wikipedia.org/wiki/PageRank>

<http://www.math.cornell.edu/~mec/Winter2009/RalucaRemus/Lecture3/lecture3.html>

<http://ilpubs.stanford.edu:8090/422/1/1999-66.pdf>

<http://pr.efactory.de/e-pagerank-algorithm.shtml>

8.

28th March

Note that this is Thursday, since we have holiday on the 29th March on account of Good Friday.

Note that there is a change in location. COM1-0209 has been booked, from 9am to 11am on Thursday, 3/28/2013. (I was unable to book our regular location during this time).

Group: SUBHASREE BASU, ALOK KUMAR KESHRI, RAJIV RATN SHAH, VENKATA KIRAN YEDUGUNDLA, VU VINH AN.

Topic: Approximate counting: DNT counting, Approximating the permanent, Volume estimation.

Reference: Chapter 11 of the book ‘Randomized Algorithms’ by Rajeev Motwani and Prabhakar Raghavan.

9.

11th April.

Note that this is Thursday. The change is due to the fact that on 5th April, one of the presenters ([LE TUAN ANH](javascript:void(0);)) have his master’s thesis presentation as well. Hence the change to 11th April. We consulted on 28th March with the class (more than 2/3rd of the students were present) and they agreed for this change.

Note that there is a change in location. COM1-0209 has been booked, from 9am to 11am on Thursday, 4/11/2013. (I was unable to book our regular location during this time).

Group: Aissan, Anup, Seung Min, Le, David, NARMADA SAMBATURU.

Topic: Karmarkar’s Interior point algorithm.

Reference: Paper available in IVLE.

10.

12th April.

Group: Supartha, Aarthi, Etkin, Darly Seah, Rajendra.

Topic: Approximation algorithms: Sparsest cut.

Reference: Chapter 21 of the book `Approximation Algorithms’ by Vijay V. Vazirani.

11.

19th April

Group: Girish, Mimentha, Rahul, Zilig, Karthik.

Topic: Online Algorithms.

Reference: Survey available in IVLE.

12.

18th April

Note that this is Thursday.

Note that there is a change in location. COM1-0209 has been booked, from 9am to 11am on Thursday, 04/18/2013. (I was unable to book our regular location during this time).

Group: Wangsheng, Ye Hong, Jin Yong, Wangwei, Gordon.

Topic: Turbo codes.

References: Available in IVLE.