**General Guidance and Info Pertinent to In-Class Midterm Exam**

**On November 1, 2016**

**Part I**

**General guidance about the Midterm Exam:**

1)      Will the midterm be open note / open book?

[PT] It will be closed notes/book, but I will remind you (either by including it in problem formulations, or writing down on the whiteboard if asked) of the definitions and terminology, so the focus of the test is on your reasoning and applying those definitions correctly (and not primarily on memorizing).

2)     Will the midterm focus more heavily on what was covered with the homework we [have] completed? (i.e., HW1 and HW2)

There will likely be just/at most 1 question (out of 5 total) on the most recent material. By "most recent",

I mean later sections in Ch. 4 and Sec. 5.1 (which is being covered this week).

HW3 will have been completed before the Midterm, so the conceptual questions in it, from the parts of

Ch. 3- 4 covered on HW3, are a perfectly fair game.

3)      Will we get HW3 grades before the midterm so we can see what we did wrong?

[PT] I’m afraid not, simply b/c there's very little time (and the only resource for grading HW3 is me, with everything else already on my plate).

What I will do over the weekend, is post to BB-Learn some general comments and clarifications and partial solutions on conceptual/math problems from HW3, so you have the sufficient time to go over it before the test.

**Part II**

**Some topics that were not specifically covered in-class:** which ones you should feel free to skip vs. which ones you need to study, prepare for the Midterm Exam

The ones marked in red are definitely a “fair game” and you should study those concepts, theorems and/or algorithms for the Midterm.

* UG = Undergraduate students
* G = Graduate students
* PT = Yours Truly (the instructor’s comments/clarifications)

We didn't go [in the lectures] through these topics:

- Graphic Sequence and Havel-Hakimi Theorem  (**AGT-Lecture1 - page 6-8**)

[PT] Feel free to skip this theorem and other details on “graphic sequence(s)”.

- The "Suff[iciency]" part of the proof for "A graph G is bipartite iff it has no odd cycles."  (**AGT-Lecture1 - page 24**)

[PT] This is fundamental. Even UG students should be able to prove this. So, it's a legitimate question for the exam.

- **Proof** for "Let H be a graph of diameter d. Then there is a graph G of radius d of which H is the center."  (**AGT-Lecture3 - page 19**)

[PT] Not that important, so feel free to skip the proof.

- **Proof** for "Depth-first search trees have no cross-edges."  (**J. Gross AGT-Ch4-SpanningTrees - page 14**)

[PT] Basically anything about properties of BFS and DFS is a legitimate homework or (if short enough) exam question.

So, do study this regardless of whether I went through the proof in-class or not.

- **Proof** of "Let Tk be the Prim tree after k iterations of Prim-next-edge on a conn graph G, for 0 <= k <= |V|-1. Then Tk is a subtree of an MST of G."   (**J. Gross AGT-Ch4-SpanningTrees - pages 22-23**)

[PT] This is also fundamental, and certainly a legitimate question for at least graduate students.

UG students should understand what the result says and know how to apply it to Prim-based MST generation, but need not worry about details of the proof.