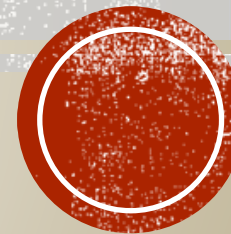


CS 428

MIDTERM REVIEW

Fall 2021

Bruce F. Webster



- On-line via Learning Suite – you can take it anywhere, but you will have a 3-hour limit once you start
- Test will open at 0005 on 11/22 and will close at 2359 the same day (~24 hrs)
- Open book, open note, open device – but your own work (no group tests, no asking others for help)
- Questions will typically call for citations from readings and/or lectures
- Expect some questions to deal with lifecycle deliverables
- Test will be five questions, each worth 25 points
- Total test score will be 125 points (25% of your class grade)

THE TEST ITSELF

- *The Mythical Man-Month* (Brooks)
- *Peopleware* (DeMarco & Lister)
- *Facts and Fallacies of Software Engineering* (Glass)
- “The Five Orders of Ignorance” (Armour)
- “System-Level Heuristics” (Meier & Rechtin)
- Webster readings #1 through #6 (though #7 can be used also)
- All my in-class lectures (and accompanying slides)
- Podcasts

CLASS SOURCES FOR THE MIDTERM

- *The Mythical Man-Month* (Brooks): Chapter 18 (“Propositions of *The Mythical Man-Month*: True or False?”)
- *Peopleware* (DeMarco & Lister): Table of contents
- *Facts & Fallacies of Software Engineering* (Glass): Table of contents
- Webster #6 (pitfalls) (<http://bfwa.com/pitfalls/>)
- Online readings list (<http://cs428.cs.byu.edu/index.php/readings-and-podcasts/>)
- All lecture slides (<http://cs428.cs.byu.edu/index.php/class-lecture-videos-slides/>)
 - Download, index for searching, have handy
- Your own notes

GREAT MIDTERM STUDY GUIDES / CHEAT SHEETS

- **IMPORTANT: write your answers first in a local editor, and then copy-and-paste each into Learning Suite**
- You must cite from at least one of the class sources when a citation is asked for.
- Feel free to cite to my lecture slides (but if the point is simply restating a class source, you must cite the source instead).
- Feel free to use ‘omitted’ chapters/articles if you feel them relevant.
- Form of citation varies by source, but should be sufficient to identify ***specifically*** what you are relying upon
- Basic score for a brief correct answer and an appropriate citation is 80% (4 of 5 points)
 - To get 5 points, you need to add some real detail to your answer, reflecting your grasp of the issue and the material

ON GIVING ANSWERS

- For a given answer:
 - Missing: 0 points
 - Inappropriate answer and/or irrelevant citation: 1 to 2 points (my call)
 - Unspecific citation (“Brooks, chapter 2”) or correct explanation with no/wrong citation (“Brooks Law”): 3 points
 - Citation with some detail (1-2 sentences): 4 points (this is the ‘default’ score)
 - **Adding people to a late project makes it later. Brooks Law, TMMM, Chapter 2**
 - To get 5 points, you need to *explain in detail* (3-5 sentences) with a correct citation:
 - **Doubling the development staff will not be effective in finishing the project on time because when new people are added to a team it takes additional time to train them, catch them up to speed on the project, and working as efficiently as a team member who has been there from the start. In addition to these points, it also will exponentially increase the avenues of communications on the team. This added communication will take more time also. See Facts and Fallacies of Software Engineering, Fact #3, and also Brooks Mythical Man Month Chapter 2 near the end of the chapter, where it states "Adding manpower to a late project make it later.**
- **For the entire test: up to 5 points extra credit granted by me based on how impressed I was with your grasp of the materials and concepts.**

GRADING CRITERIA

SAMPLE QUESTION #1

- You have been working for BigCorp for a year or so, mostly doing bugs fixes and feature ad-ons for an existing in-house software system, ROVER. BigCorp now would like to replace ROVER with a new, rewritten-from-scratch system (code name OTTO), which will be hosted on AWS, a cloud service that BigCorp has not used previously. They ask you for your opinion as to both the potential risks of the OTTO project, as well as any recommendations as to how to increase the likelihood of success. At this point, there are no schedule or budget constraints.

For one (1) point each, list up to five (5) issues or recommendations that you consider relevant to the scenario above.

SAMPLE QUESTION #2

- You are in the process of interviewing with MajorCorp for an entry-level software engineering position within their IT department. Your initial responsibilities will include learning and maintaining various internal software systems used to help run MajorCorp. Your interview process will include one-on-one discussions with the following people:

Raj, the IT team leader you'll be directly reporting to
Sally, Raj's boss, who oversees all internal IT maintenance work
Trace, MajorCorp's chief technical officer and Sally's boss

For up to five (5) points each, for each of the three people above (Raj, Sally, Trace), identify and explain one (1) key piece of information that you would try to find out to determine whether you might want to accept or turn down a job offer from MajorCorp, giving at least one (1) citation for each answer.

During your interview process, you have a chance to walk around the IT division at MajorCorp and to meet some of the other IT engineers. For up to five (5) points each, identify and explain two (2) more things about the work environment there that you would try to learn, again with the intent of deciding whether or not to accept a position at MajorCorp.

SAMPLE QUESTION #3

- After working for two years at MajorCorp, you are given a promotion and a new challenge: you are to put together a team to replace an aging legacy software system -- for which you've done some bug fixes and feature enhancements -- with a new custom software system built from scratch and designed to meet current and future company needs. However, Sally, who is now your direct boss, wants you to give her a rough estimate as to how long the project will take, so she can tell Trace.

For up to five (5) points each, identify and explain five (5) distinct reasons why her request is unreasonable, or at least why any estimate you give her is unlikely to be useful. Give at least one (1) citation for each reason.