**Course Schedule**Lecture videos courtesy Professor Hany Farid. Schedule subject to change.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date |  | Topic | Watch before class (minutes) | Out | Due |
| 10/17 | M | Course introduction; algorithm complexity | [efficiency of algorithmsLinks to an external site.](https://drive.google.com/file/d/1EukvYAyuyVnMJoYJGEO-qF7f2oy2jroX/view?usp=sharing), [run-time analysisLinks to an external site.](https://drive.google.com/file/d/1MU9J43ox2fRWYCxOyQrrGJHj8cNHF6I-/view?usp=sharing), [big-O notationLinks to an external site.](https://drive.google.com/file/d/1GjR2PZG95LWb_OrOS9lwFYir12ZX178u/view?usp=sharing) (45) | A1 |  |
| 10/19 | W | Search and sort algorithms | [selection sortLinks to an external site.](https://drive.google.com/file/d/1LahEi_vWr1U7gWFNT4SwAh1tzAc8gXn-/view?usp=sharing), [analysisLinks to an external site.](https://drive.google.com/file/d/1cPXp2I0IfkEr6oaqL73Vx-OXgy8by0y-/view?usp=sharing" \t "_blank), [insertion sortLinks to an external site.](https://drive.google.com/file/d/13BSt9rPYvd1txaXqgHPvM0-CA2tHqQEm/view?usp=sharing), [analysisLinks to an external site.](https://drive.google.com/file/d/1XlqtKKXLhzTbkIdgVT4z9B05fKi4yIDg/view?usp=sharing" \t "_blank) (32) |  |  |
| 10/24 | M | More sort algorithms | [merge sortLinks to an external site.](https://drive.google.com/file/d/1nrzVsPfblxft36pc44M3TrVqDaHsnCd3/view?usp=sharing), [analysisLinks to an external site.](https://drive.google.com/file/d/1bkEcTFv0U2q-bEVFj7hH-hEG_mCVCYyn/view?usp=sharing" \t "_blank), [quicksortLinks to an external site.](https://drive.google.com/file/d/1NJWiskxYLYL6F4i_-wjDQU59vhdYzIT4/view?usp=sharing" \t "_blank) (31) | A2 | A1 |
| 10/26 | W | Intro to data structures; linked lists | [listsLinks to an external site.](https://drive.google.com/file/d/1bGmFBsp7-kqSPcu1j2hXMM2GgZ7WiULE/view?usp=sharing), [linked listsLinks to an external site.](https://drive.google.com/file/d/1pdff_xyC8VSU_QX8_POLNlo88Wf317Sx/view?usp=sharing), [drillLinks to an external site.](https://drive.google.com/file/d/1dNsyIvdd3o6rzBFHmZfTmETAILGFZtEm/view?usp=sharing" \t "_blank) [[codeLinks to an external site.](https://drive.google.com/file/d/1NfZmaodczH2ZyHvz-VA-ToAh5qjDc22W/view?usp=sharing" \t "_blank)] (38) Optional: doubly linked lists: [1Links to an external site.](https://drive.google.com/file/d/1WQ957ItVBXgUovedipVywUz8QNY1neLP/view?usp=sharing), [2Links to an external site.](https://drive.google.com/file/d/1ciFcAmbWlhKDvxjY2GEfKYTKiW0ex0Wz/view?usp=sharing), [3Links to an external site.](https://drive.google.com/file/d/1d1VfOJuvGPjimieJqSfkLRYC2jkq_EZ3/view?usp=sharing), [4Links to an external site.](https://drive.google.com/file/d/1N_S_QowPFKaXAXAe4T29eDDYihoPMIze/view?usp=sharing), [5Links to an external site.](https://drive.google.com/file/d/1twKWgyrJM6-AuyyICirQHhzQ8pqo4bj8/view?usp=sharing) (35) |  |  |
| 10/31 | M | Dictionaries | [dictionariesLinks to an external site.](https://drive.google.com/file/d/1GUy7hI5XlfURbj5VkxKgxi405fBQCIPe/view?usp=sharing), [hashingLinks to an external site.](https://drive.google.com/file/d/1DYNmUGr2mnaoflaWAecdN0aYRl5HjBsd/view?usp=sharing" \t "_blank), [run-timeLinks to an external site.](https://drive.google.com/file/d/1yTw3wdLTHcsQkjnwwCb9FZp3PPf_xtZu/view?usp=sharing), [drillLinks to an external site.](https://drive.google.com/file/d/1SXfDPSv1iF_oy9Z5T__qYopV2P8Akc2e/view?usp=sharing" \t "_blank) [[codeLinks to an external site.](https://drive.google.com/file/d/17Dw_TNtbQ6muGvv6mCrn1KLDpvB-M_DO/view?usp=sharing" \t "_blank)] [[DOI.txtLinks to an external site.](https://drive.google.com/file/d/1x-xYnCPzA4ZbKb76I64fDDowtQvU-qI_/view?usp=sharing" \t "_blank)] (43) | A3 | A2 |
| 11/2 | W | Graphs | [graphsLinks to an external site.](https://drive.google.com/file/d/1Phf9dveviodykjUzwCzkR2nFMqyWqiwo/view?usp=sharing), [representing graphsLinks to an external site.](https://drive.google.com/file/d/1tRRVLJyeuemjMNMyS690lz4IPpYB-IWv/view?usp=sharing), [breadth first search (BFS)Links to an external site.](https://drive.google.com/file/d/1qHaMQXkPDHU5mfYc9WKRlNhRnHPsyB38/view?usp=sharing), [queues and stacksLinks to an external site.](https://drive.google.com/file/d/13fnBkyRSHuTWwVkJuOZuXL072rrHl5tC/view?usp=sharing), [BFS implementationLinks to an external site.](https://drive.google.com/file/d/1-ewA9C-gBQWd8IZ-edJLbRX2uysWTSJ5/view?usp=sharing), (55) |  |  |
| 11/7 | M | Regular expressions | None (in-person lecture) |  |  |
| 11/9 | W | Trees | [binary treesLinks to an external site.](https://drive.google.com/file/d/1LuGuXDga4OtbHfdAvQSoBseQmCBYNMkh/view?usp=sharing) (35) | A4 | A3 |
| 11/14 | M | Linear algebra 1 | [linear equationsLinks to an external site.](https://drive.google.com/file/d/1KKhchVndkncyeQLF2ZIoWD2Ciw2mP-Xc/view?usp=sharing), [geometric pictureLinks to an external site.](https://drive.google.com/file/d/18MhUwSAu8lMP8IlY24h7-NWPvkq978-o/view?usp=sharing), [vectorsLinks to an external site.](https://drive.google.com/file/d/1mCFSAN5mcEHlD0fTyMX0ktJ6TV_ludkR/view?usp=sharing" \t "_blank), [vector pictureLinks to an external site.](https://drive.google.com/file/d/1l5JIg0m-V48p2JiRilJkRFzZ0sppIsdW/view?usp=sharing) (39) |  |  |
| 11/16 | W | Linear algebra 2 | [matricesLinks to an external site.](https://drive.google.com/file/d/1lG_Ofx9ATSwAX2p9FwiG_CaPhNFKp185/view?usp=sharing), [matrix pictureLinks to an external site.](https://drive.google.com/file/d/1jOWWBqFgeAHDjC5pKnMaPkXpz0VONmjk/view?usp=sharing), [degenerate solutionsLinks to an external site.](https://drive.google.com/file/d/1D1CEiHBxRRntOiJD9v8JHXbv9mpLmXen/view?usp=sharing), [summaryLinks to an external site.](https://drive.google.com/file/d/1xpw29zq4QJ6eD3G37sZG_EHZHqSZxgOB/view?usp=sharing" \t "_blank), [forensics exampleLinks to an external site.](https://drive.google.com/file/d/1rWF2FPjxhAzVVm6W8MHPJ4gKF9ii9YmV/view?usp=sharing) (59) | A5 | A4 |
| 11/21 | M | Least squares estimation 1 | [reviewLinks to an external site.](https://drive.google.com/file/d/1RD4i9UlcYOalhYbdDQGt5H3KTUrWO9JA/view?usp=sharing), [LSE introLinks to an external site.](https://drive.google.com/file/d/1x5XwDyh0ePCdgtDhY9iOBxA3H3DdVyaE/view?usp=sharing), [part 2Links to an external site.](https://drive.google.com/file/d/1pQ7SUpnwpDFbKbjp3n0feq_UQFcNtUx-/view?usp=sharing), [drillLinks to an external site.](https://drive.google.com/file/d/1Hn2k4qxOp14qCTGz84UpCJHkAPOVs6CN/view?usp=sharing" \t "_blank) (51) |  |  |
| 11/23 | W | No class (Day before Thanksgiving) |  |  |  |
| 11/28 | M | Least squares estimation 2 | [LSE part 3Links to an external site.](https://drive.google.com/file/d/1aA7MNbBnnuKcV0tC5mrcuBssGt3JMXt3/view?usp=sharing), [drillLinks to an external site.](https://drive.google.com/file/d/1leG8S98fvLrSwePvSp7b_YLb0Oe-xdkJ/view?usp=sharing" \t "_blank), [part 4Links to an external site.](https://drive.google.com/file/d/1RaFFROIaQACX3Eg9IIJN03TF024r5Ilq/view?usp=sharing), [solve for bLinks to an external site.](https://drive.google.com/file/d/1JygOjs5tUXe0ivR2Sg-ZJb0U9ar2nbuc/view?usp=sharing), [solve for aLinks to an external site.](https://drive.google.com/file/d/1UyEZSYDKgjIXEiKSLOAwgPu6U8omLqRn/view?usp=sharing), [drillLinks to an external site.](https://drive.google.com/file/d/1oLnG4NBuMKQqQPaTT5GAlhDCQezr0i3j/view?usp=sharing" \t "_blank) (38) |  |  |
| 11/30 | W | Least squares estimation 3 | [matrix pictureLinks to an external site.](https://drive.google.com/file/d/1YGw3LXHXq1WMX-dbUeMO4EHJnczXqs78/view?usp=sharing), [part 2Links to an external site.](https://drive.google.com/file/d/1dUUS7ZLlOl8yv2XAuMS4au-SCaOuaLRX/view?usp=sharing), [drillLinks to an external site.](https://drive.google.com/file/d/1ObzPoOfPjF0z2uGU1pArab3HcmkeSFsb/view?usp=sharing" \t "_blank) [[codeLinks to an external site.](https://drive.google.com/file/d/1_dgO7tXcQkJE9i1BkubUPw4cd8LJ881n/view?usp=sharing" \t "_blank)] [[solutionLinks to an external site.](https://drive.google.com/file/d/1trHRqIPlFEdkVpJhHWXYgvSyLhMscn45/view?usp=sharing" \t "_blank)], [regressionLinks to an external site.](https://drive.google.com/file/d/1tEevG5glEdB92gmNBzDhQEzHa9aQlZH2/view?usp=sharing" \t "_blank), [weighted least-squaresLinks to an external site.](https://drive.google.com/file/d/1fescoufgeDyIW0c_vGZlYdEd_45zsddh/view?usp=sharing), [part 2Links to an external site.](https://drive.google.com/file/d/1m9Mbh1yKn4SThQ8T673-ygs_scoSihKO/view?usp=sharing), [drillLinks to an external site.](https://drive.google.com/file/d/1x7Iqo9x0muUSknvkl7EFQnlQGJgJBH58/view?usp=sharing" \t "_blank) [[codeLinks to an external site.](https://drive.google.com/file/d/1v4nCvTPvzUqxCI0jtFd74MfC9knKS-91/view?usp=sharing" \t "_blank)] [[solutionLinks to an external site.](https://drive.google.com/file/d/1RFN2cLwn0Rlzyz5ciBUuXKO2I0UsGZeE/view?usp=sharing" \t "_blank)] (52) | A6 | A5 |
| 12/5 | M | Review |  |  |  |
| 12/7 | W | No class (RRR week) |  |  | A6 |
| 12/12 | M | 206B Final Exam |  |  |  |